delmarva power

A PHI Company

Todd L. Goodman
Assistant General Counsel

800 King Street
Wilmington, DE 19801

P.O. Box 231
Wilmington, DE 19899-0231

302.429.3786 – Telephone
302.429.3801 – Facsimile

todd.goodman@pepcoholdings.com

May 15, 2008

Karen Nickerson
Secretary
Public Service Commission
State of Delaware
861 Silver Lake Blvd., Suite 100
Cannon Building
Dover, Delaware 19901

Re: In the Matter of Integrated Resource Planning for the Provision of Standard Offer Supply Service by Delmarva Power & Light Company Under 26 Del. C. § 1007(c) & (d); Review of Initial Resource Plan Submitted December 1, 2006 (Opened January 23, 2007); PSC Docket No. 07-20

Dear Ms. Nickerson:

Attached for filing is the Second Integrated Resources Plan ("IRP") Update to the ongoing 2006 IRP filing of Delmarva Power & Light Company ("Delmarva Power"). This IRP update is being filed in accordance with the requirements of the Delaware Electric Utility Retail Customer Supply Act of 2006 ("EURCSA") (in particular, 26 Del. C. § 1007(c) 1 - 4 thereof) and in response to the requests of the Staff of the Delaware Public Service Commission as specified in the 24 March 2008 letter (attached to the IRP as Appendix I) from James McC. Geddes, Staff Counsel, to Todd L. Goodman, Associate General Counsel, Delmarva Power. This filing serves to continuously comply with the requirement of EURCSA and to keep the planning document current with the ongoing energy issues in Delaware.

We believe this Update is responsive to the Staff Requests and in compliance with EURCSA. We note only that the data that will constitute Appendix II, which will present a more detailed discussion of the portfolio model development, assumptions and simulation results presented within this IRP update, is now being put into filable form by The Brattle Group and will be provided not later than next Tuesday, May 20, 2008.

We look forward to proceeding with consideration of this IRP in accordance with the procedural schedule set forth by Hearing Examiner Price in her letter dated March 11, 2008.

Very truly yours,

Todd L. Goodman

Glenn C. Kenton, Esquire
Richards, Layton & Finger, P.A.
Counsel to Delmarva Power & Light Company

TLG

Enclosure

cc: Service List
Bruce Burcat, Executive Director
Michael Sheehy, Deputy Executive Director
William F. O'Brien, Deputy Attorney General
James McC. Geddes, Esquire

SERVICE LIST FOR PSC DOCKET NO. 07-20

anathans@delawareonline.com
Bill Moore" <Bill.Moore@pepcoholdings.com>
"Bloom David (DOS)"
<david.bloom@state.de.us>
"Buttner Sarah (DOS)"
<sarah.buttner@state.de.us>
"Caroline Angoorly"
<Caroline.Angoorly@NRGEnergy.com>
"Cherry Philip J. (DNREC)"
<Philip.Cherry@state.de.us>
"Citrolo John (DOS)" <john.citrolo@state.de.us>
"Cohan Jennifer (LegHall)"
<Jennifer.Cohan@state.de.us>
"Dillard Janis L (DOS)"
<Janis.Dillard@state.de.us>
"Dr. Paul E. Sample" <Sample@bellatlantic.net>
"Houck Jason (LegHall)"
<Jason.Houck@state.de.us>
"Howatt Robert (DOS)"
<robert.howatt@state.de.us>
"James J. Demarest, Jr."
<jjdemarest@pepco.com>
"James McC. Geddes" <jgeddes@ashby-
geddes.com>
"McDowell Harris (LegHall)"
<Harris.McDowell@state.de.us>
"Padmore Arthur (DOS)"
<arthur.padmore@state.de.us>
"Rob Propes" <Rob@bluewaterwind.com>
"Scoglietti Robert (OMB)"
<Robert.Scoglietti@state.de.us>
"Sheehy Michael (DOS)"
<michael.sheehy@state.de.us>
"Thomas P. McGonigle"
<TMcGonigle@WOLFBLOCK.com>
amuller@dca.net
dale.gant@pepcoholdings.com
don.hall@pepcoholdings.com
eroseman@icfi.com
george.potts@pepcoholdings.com
glenn.moore@delmarva.com
gsawyer@mnat.com
Gary.cohen@pepcoholdings.com
harris.mcdowell@state.de.us
jason.houck@state.de.us
jbbyrne@udcl.edu
jebarrar@pepco.com
jf@UDel.Edu
jgeddes@ashby-geddes.com
john.citrolo@state.de.us
john.hutts@gdsassociates.com
jrose@icfi.com
Karen.Nickerson@state.de.us
kimberlyAugust@wges.com
KCollison@icfi.com
Kenton@rlf.com
lee.frankel@pepcoholdings.com
len.beck@pepcoholdings.com
lynn.strivastava@pepcoholdings.com
macchryssikos@wges.com
mark.finfrock@pepcoholdings.com
maryannmcgonegal@aol.com
mhoughton@mnat.com
mquinan@cblaw.com
mscheller@icfi.com
pjpb@bbrslaw.com
pkathpal@icfi.com
rfagan@synapse-energy.com
ruth.price@state.de.us
steve.sunderhauf@pepcoholdings.com
thouseal@ycst.com
todd.goodman@pepcoholdings.com
todd.mcgregor@pepcoholdings.com
wbice@milbank.com

BEFORE THE PUBLIC SERVICE COMMISSION FOR
THE STATE OF DELAWARE

In the Matter of Integrated Resource Planning For the Provision of Standard Offer of Service by Delmarva Power & Light Company Under 26 Del. C. § 1007(c) & (d); Review of Initial Resource Plan Submitted December 1, 2006 (Opened January 23, 2007)	: : : : : : : :	PSC Doclet No. 07-20

Delmarva Power & Light Company's Second Delaware IRP Update

Todd L. Goodman
P.O. Box 231
800 N. King Street
Wilmington, DE 19899
Phone: (302) 429-3786
E-Mail: todd.goodman@pepcoholdings.com

Glenn C. Kenton
RICHARDS, LAYTON & FINGER, P.A.
One Rodney Square
920 N. King Street
Wilmington, DE 19801
Phone: (302) 651-7726
E-Mail: Kenton@rlf.com

May 15, 2008

DELMARVA POWER & LIGHT INTEGRATED RESOURCE PLAN
MAY 15, 2008
TABLE OF CONTENTS

Page

DELMARVA POWER & LIGHT INTEGRATED RESOURCE PLAN
MAY 15, 2008

I. EXECUTIVE SUMMARY

This filing, an update to the previous filings submitted December 1, 2006 and March 5, 2008 in the Integrated Resource Plan ("IRP") Docket, evaluates and compares power procurement portfolios for providing electricity for Standard Offer Service ("SOS") customers under five potential long-term scenarios. These scenarios are consistent with the request of the Staff of the Delaware Public Service Commission in its March 24, 2008 letter to the Company (attached as Appendix 1).

Delmarva recommends that SOS customer requirements be procured through a managed portfolio including long-term contracts with land based wind resources (Scenario I below). This scenario is the most economic of the long term stabilization scenarios evaluated and offers the benefits of wind resources with an element of price stability. The recommended managed SOS portfolio includes a blend of firm contracts (24X7 annual firm), long term wind contracts, monthly blocks of 50 Mw contracts for peak energy, and spot market purchases.

Scenarios that included off-shore wind resources (Scenarios IV and V below) provided an element of price stability (like land based wind) but did so at a cost that is 28% higher than the recommended case. In addition, the Company proposes to procure renewable energy supplies for all Delmarva customers to meet the current State of Delaware Renewable Portfolio Standards ("RPS"). As requested in Staff's March 24, 2008 letter, this updated IRP filing also includes recommended cost recovery mechanisms.

A. Supply Management

- Staff asked Delmarva to provide simulations of energy portfolios under the following long-term procurement scenarios:
  - Bluewater offshore wind Power Purchase Agreement ("PPA") and backup generation PPA;
  - PPA for the procurement of onshore wind power from a regional jurisdiction; and
  - No new generation assets with reliance on PJM's Mid Atlantic Power Pathway project.

Consistent with the request by Staff and with two additional scenarios, Delmarva evaluated the procurement of SOS requirements through a managed portfolio under several potential long-term stabilization scenarios. The Table below shows a summary of the results for the five scenarios evaluated for 2016. The Company's recommended Scenario, Scenario I, is shown below on the shaded row.

		10 Percentile	2016 Expected Price $MWh	90 Percentile	Renewable Energy
•					
•	Base Case: Managed Portfolio	$88.80	$106.99	$121.59	RECs only
Long Term Stabilization Scenarios:					
I	Managed Portfolio and Land Based Wind	$92.07	$107.76	$119.36	Yes
II	Managed Portfolio, LB Wind and CT	$93.69	$108.14	$117.92	Yes
III	Managed Portfolio, LB Wind and Long term Firm PPA	$93.33	$109.02	$120.62	Yes
IV	Managed Portfolio and Bluewater	$125.30	$137.77	$144.58	Yes
V	Managed Portfolio and Hybrid	$125.71	$137.50	$143.32	Yes

- The base case consists of a managed portfolio and the completion of the Mid Atlantic Power Pathway ("MAPP") transmission project without wind contracts or new regulated generation. The managed portfolio of the base case includes firm contracts (24X7 annual firm), monthly blocks of 50 Mw contracts for peak energy, Renewable Energy Credits ("RECs"), and spot market purchases The base case provides the lowest expected cost of procuring power for SOS customers. However, the base case does not meet the goal of the State to develop new sources of wind energy, provide additional levels of energy independence, provide potential prices hedges or add extra local reliability support through Delaware-sited generation.
- In all scenarios, the MAPP project is critical for maintaining long-term electric system reliability and deliverability of electricity supply options.

- **The managed portfolio with land based wind contracts (Scenario I) is the recommended case because it provides more price stability than the base case, satisfies the State's desire to secure renewable energy for the Company's Delaware customers and is the most economic of the long-term stabilization scenarios.** The cost difference between this scenario and the base case is small. Consequently, Delmarva believes that adding a portfolio of land-based wind contracts for both energy and RECs, with terms varying from 15-20 years to the managed portfolio is the right solution. Scenario 1 provides the best economic and environmental solution when considering the desire to secure new sources of wind energy, displace fossil-fuel emissions in the region, and provide the lowest cost wind power for the Company's Delaware customers. Delmarva is planning to file a separate application to request approval of long-term contracts for land-based wind resources in June 2008.
- The construction of a Commission-regulated generation asset in the Delmarva zone of PJM can provide additional reliability in Delaware and provide a partial hedge against future price increases. Despite the relatively clean burning nature of a modern gas burning facility, such a facility would result in increased carbon emissions in the State. If the presence of a new gas burning facility resulted in the closure of an older, inefficient fossil fuel generator, however, there could be a net reduction of carbon emissions. If the Commission determines that additional fossil fueled generation in Delaware is in the public interest, then it should authorize Delmarva to conduct a detailed

feasibility study to examine potential sites, sizing requirements, and infrastructure needs to more precisely identify the site specific construction costs and other key issues.

- Both scenarios that incorporate Bluewater wind into the portfolio (Scenario IV and V) are not recommended. Though, like land based wind, the proposed Bluewater Wind project provides a limited element of price stability, the Bluewater Wind proposal comes with a price premium of 28% over Delmarva's recommended managed portfolio which includes long term contracts with land based wind resources. **The Bluewater facility is so expensive that the lower limit of the expected cost of the portfolio with Bluewater included is *higher* than the expected upper limit of all portfolios without Bluewater included.**

- Cost-effective DSM, both demand response and energy efficiency, should be pursued <u>in addition</u> to any SOS supply approach. The kilowatt-hour of energy we do not use is the least cost energy and strong efforts by both the Delmarva Power and the Sustainable Energy Utility ("SEU") in this area are important for the future of Delaware.

- Delmarva proposes purchasing green power to meet Delaware's RPS requirements for <u>all</u> of Delmarva's Delaware customers. This would better encourage the development of renewable or green power, allow for more economic bulk purchases of renewable energy, and allow more Commission oversight on renewable energy purchased to meet the rapidly growing renewable requirements of our customers. Delmarva recommends initiating cost-effective RPS compliance through approximately 310 MW of contracts with a diverse set of land-based wind resources and suppliers, acquired through a competitive bidding process. Delmarva is currently negotiating purchase power agreements from bids selected from a robust competitive bidding process. Approximately 160 MW of the energy and credits would be used for SOS customers and approximately 150 MW for non-SOS customers. The land-based wind proposal will meet the entire non-solar RPS requirements for the 10-year horizon of this IRP. The solar requirements will be met primarily by working with the newly created Sustainable Energy Utility. In addition, we plan on supplementing the SEU's efforts through installation of solar equipment on Delmarva Power facilities and sponsoring complimentary programs with the SEU to spur development of solar photo-voltaic energy in the state. The RPS-related costs should be recovered through a non-bypassable charge to all the Company's Delaware customers.

- Procurement of SOS for Residential and Small Commercial customers would occur through a portfolio approach as noted in this IRP update. The major supply components of the total portfolio include: demand response, energy efficiency, full service requirement 3-year rolling market contracts, firm contracts (24X7 annual firm), long term wind contracts, monthly blocks of 50 MW contracts for peak energy, spot market purchases, and potentially utility owned generation if required by the Commission. Delmarva evaluated a long-term 100 MW contract for firm energy and capacity as part of the SOS customer portfolio analysis (Scenario III). Such a contract may provide price stability benefits to SOS customers. Subjectzation, Delmarva would like to conduct a "market test" of 5, 10 and 15 year firm contracts for more detailed analysis and possible inclusion in the SOS procurement portfolio.

A detailed discussion of the evaluations of the above options and other relevant considerations are included in the body of this IRP update.

B. Other Positions requested by the Staff

In its March 24, 2008 letter, Staff also requested the Company's position on (1) cost recovery; (2) implementation of a non-bypassable distribution charge; (3) possible restrictions of customer choice; and, (4) operation of true-up mechanisms. The Company's positions on these matters follows.

- There are customers in all major customer classes exercising retail choice, including some residential and small commercial customers. For that reason, and the fact that we have proposed alternatives for addressing customer migration risk, Delmarva is not proposing to restrict customer choice at this time.
- No structural change is proposed to the power procurement process for Large Commercial SOS customers (an auction based Request for Proposals ["RFP"] with 1-year full requirements contracts).
- RPS requirements will be met for all customer classes, for both SOS and non-SOS customers, as noted above. Cost recovery would therefore need to occur on a non-bypassable basis to accommodate customers electing retail choice.
- SOS costs would be recovered through a fuel rate or purchased power adjustment clause approach, similar in concept to those in place now for

natural gas companies and used historically for electricity companies. As described more fully in the body of this IRP update, costs for supplying SOS customers would be tracked monthly in a balancing account. Delmarva proposes to reset rates quarterly in order to mitigate volatility in customers' bills from changes to electricity prices.

- The Regulatory Asset Recovery Mechanism (RARM) should be continued and should include the additional costs resulting from maintaining a portfolio procurement function.
- Costs for wind contracts and any regulated generation constructed should be recovered through a non-bypassable charge. The Company proposes the remainder of the portfolio address migration in the following way. Migration of customers away from SOS resulting in a 5% or greater increase in SOS rates would trigger a filing with the Commission for a non-bypassable surcharge to all SOS-eligible customers to limit the effect of migration on SOS bills. The Commission at that time could also consider restricting customer choice to limit potentially stranded costs.
- The costs for a regulated generation asset, if required by the Commission, would be recovered through a non-bypassable charge to all customers since the asset is primarily for reliability purposes.
- Other appropriate rate design changes can be proposed and considered in a subsequent base rate case.

The summary of conclusions and proposals above touches on some of the detailed discussions and analyses that are contained in the body of this IRP update. The Company looks *forward to the opportunity to further discuss the matters set forth in this document. In addition, a full and complete filing for the land-based wind contracts covering all customers and the full term comparison to the Bluewater Wind offshore proposal is scheduled to be filed in June. The Company looks forward to proceeding with consideration of this IRP in accordance with the procedural schedule set forth by Hearing Examiner Price in her letter dated March 11, 2008.*

II. BACKGROUND

Under the requirements of the Electric Utility Retail Customer Supply Act of 2006 ("EURCSA" or "HB 6") and as part of Delaware Public Service Commission (the "Commission") Docket No 07-20, Delmarva Power & Light ("DPL", "Delmarva", or the "Company") filed an Integrated Resource Plan ("IRP") with the Commission on December 1, 2006. EURCSA also requires Delmarva to file an IRP every other year thereafter. On December 13, 2006, Staff requested additional information related to the IRP filed on December 1, 2006[1]. On January 8, 2007, the Company filed a 71 page report providing the detailed supporting documentation requested by Staff[2]. This supporting information should be considered as part of the IRP filed December 1, 2006.

Delmarva's December 1, 2006 IRP results, based on a detailed resource planning model and Demand Side Management ("DSM") program evaluations, concluded that: 1) the least cost plan would require no new generation to be sited in Delaware to meet the electrical needs of Standard Offer Service ("SOS") customers over the planning period, other than a modest amount of renewable energy (30-40MW); 2) investments in transmission facilities were the most appropriate way to maintain system reliability needs over the planning period; 3) the Company

---

[1] Delmarva Power and Light Integrated Resource Plan, 2007 – 2016, Compliance Filing, PSC Docket 06-241, December1, 2006

[2] Delmarva Power and Light Integrated Resource Plan, 2007 – 2016, Supplemental Data, PSC Docket 06-241, January 8, 2007

should implement the many cost-effective Energy Efficiency and Demand Response programs identified in the plan; and 4) obtaining Full Requirement Service (FRS) contracts for SOS procurement should be continued.

Although the IRP filed December 1, 2006 did not indicate the need for the Company to enter into long term Power Purchase Agreements ("PPAs") for new generation to be located in Delaware, it was noted within the IRP that the Company intended to update the results of the resource plan and SOS procurement strategies as needed upon such time as the Commission and the State Agencies concluded their then on-going evaluation of the proposals received as part of the Generation Request for Proposal ("RFP") process[3].

Comments on the December 1, IRP and the supporting documentation were filed in early March 2007 by intervening parties[4]. On March 23, 2007, Delmarva filed comments in response to the intervening parties' comments.[5]

On April 4, 2007, the Independent Consultant ("IC") filed a report on the Delmarva Power IRP in relation to the RFP.[6] On May 3, 2007, the Company filed comments in response to the IC's report.[7]

Delmarva notes that at the time of the December 1, 2006 IRP filing, wherein Delmarva suggested filing an updated IRP that included the results of the State Agencies decision regarding the RFP bidding process, it was expected that the State Agencies' evaluation of the bids received in response to the RFP process would be completed on the then existing schedule. However, due to the duration of the RFP process, the deadline for filing an IRP to include the results of that

[3] See IRP pp 3. At the time of the IRP filing on December 1, 2006, the bids from the RFP process had not yet been received and consequently, specific cost and other data relevant to each of the proposed projects was not yet available for evaluation purposes.
[4] See March 7 – 13, 2007 Comments on IRP Filing, PSC Web Site
[5] Response to Comments on Delmarva's Integrated Resources Plan ("IRP"), filed December 1, 2006.
[6] Interim Report on Delmarva Power IRP in Relation to RFP, April, 4, 2007
[7] Delmarva's Comment on the independent Consultant's Report, May 3, 2007

process was extended. The last such deadline extension to prepare and file an updated IRP, granted by Hearing Examiner Price, was March 5, 2008.

On March 5, 2008 Delmarva filed an Update to the IRP[8] (the "Update"). Although at the time the Update was filed no decision had been reached by the State Agencies on the outstanding RFP bids, a number of significant events had occurred in Delaware specifically affecting the IRP. One of these significant events was Commission Order No 7199 Docket No. 07-20 issued May 7, 2007. Among other items, this order directed the Company to procure the electrical energy needs of SOS customers through an actively managed portfolio.

The requirement to actively manage a resource portfolio for SOS procurement was a significant departure from the Company's recommendation in the December 1, 2006 IRP. Thus, in the March 5 Update, the Company described in some detail a risk management framework to guide the portfolio management process.[9] The Update also respectfully requested the creation of a collaborative Working Group with Staff and the Delaware Public Advocate (DPA) to facilitate the development of the "rules of the road" under which a portfolio for Delmarva SOS electrical procurement would be implemented and managed.

On March 24, 2008, Staff requested additional information from the Company related to the Update (a copy of the letter is attached as Appendix I). In particular, Staff requested the Company clarify certain information with regards to compliance with EURCSA and to identify more specific "rules of the road" relating to portfolio management, cost recovery and customer migration that the Company would recommend, as well as the portfolio resources that the Company would expect to procure and manage for each year of the planning period consistent

[8] **Delmarva Power & Light Company's Delaware IRP Update, March 5, 2008**
[9] See pps 78 - 103 of update

with the rules proposed by the Company. The specific information requested by Staff including the following:

1. The specific resources the Company recommends for inclusion in an SOS procurement portfolio for each year of the planning period;
2. Modeling the implications of incorporating long term resources into the managed SOS procurement portfolio;
3. The changes in specific resources in the Company's recommended portfolio under various planning scenarios including the Blue Water Wind PPA, the Hybrid Approach, Wind Resources from PJM and a regulated generation asset.
4. The Company's specific proposals regarding cost recovery, customer choice, non-bypassable charges and true-up mechanisms;
5. A cost and risk analysis of the resource options identified in the Update;
6. A comparison of the reliability benefits and cost of new utility owned generation vs. the hybrid approach; and,
7. A presentation of the demand response programs reviewed and the Company's rationale for recommending or not recommending a particular program.

This Addenda to the IRP provides the Company's response to these information requests. In addition, to more clearly indicate how the Company has complied with various requirements of EURCSA, an overview of the SOS procurement portfolio development process is also presented.

The Company respectfully notes that it is required, under EURSCA, to file an IRP every other year beginning with December 1, 2006. Consequently, (unless otherwise directed by the Commission and State Agencies), Delmarva is expecting to prepare the resource analysis, evaluations, and recommendations needed to file an IRP commensurate with EURCSA, Commission directives, outstanding regulations and guidelines by December 1, 2008.

III. OVERALL RESOURCE PLANNING AND PORTFOLIO DEVELOPMENT FRAMEWORK

EURCSA defines Integrated Resource Planning as:

> "the planning process of an Electric Distribution Company that systematically evaluates all available supply options, including but not limited to: generation, transmission and Demand Side Management programs, during the planning period to ensure the Electric Distribution Company acquires sufficient and reliable resources over time that meet their customer's needs at a minimal cost"

In order to meet its obligations regarding the preparation of an IRP under EURCSA and Commission Order No 7199, which requires Delmarva to implement a portfolio approach for procuring SOS customer electrical requirements, Delmarva has employed a general, two step planning process to develop and construct a preferred SOS procurement portfolio for Residential, Small Commercial and Industrial ("RSCI") customers.

The first step in this process is to develop a long term system resource projections of generation capacity by resource type, RPS requirements, system fuel diversity, transmission, demand side management programs, and forward market prices. The second step in the process is to use the results of the first step, including relevant sensitivity analysis, in combination with current market data, to create an SOS procurement portfolio for the planning period consistent with risk management tolerances and EURCSA guidelines.

The Delmarva electric system is not an isolated electrical "island." Delmarva is part of the much broader PJM electric system. Delmarva's service territory is integrally connected in a physical sense with the PJM system and Delmarva's transactions in PJM financial markets are governed by PJM rules and procedures. Consequently, Delmarva's resource planning and procurement portfolio are not "islands" either and should be developed in context of the PJM system and market environment. For example, when Delmarva purchases Full Requirements Service electrical products from "the market", it is literally purchasing a piece of the PJM market with all of its fuel and generation diversity and this product is physically delivered to Delmarva through the transmission system operated by PJM. Participating in the PJM market bestows significant reliability and financial advantages to Delmarva customers.

Because of the critical nature of expected PJM market conditions to Delmarva's SOS electrical procurement, it is necessary as a first step in the development of an actively managed portfolio to project what key aspects of the PJM system will look like in future years. Some of these key parameters include: planned generation unit construction, new transmission facilities, the penetration of energy efficiency, conservation, demand response and other demand side management programs, fuel prices, environmental compliance costs, and market energy, capacity, and REC requirements. In order to accomplish the needed modeling of future PJM market conditions, Delmarva used the IPM® model developed by ICF[10].

EURCSA requires that the IRP investigate, among other things, potential resource opportunities for a more diverse supply at the lowest reasonable cost, and that, as part of the IRP, Delmarva perform a systematic evaluation of resource alternatives. Delmarva has used the IPM® to provide a systematic evaluation of diverse resource alternatives within the PJM market.

[10] The IPM® model has been described in earlier IRP filings. Only some high level features of the model and outputs are provided herein.

For each year of the planning period, IPM® evaluates the diverse generating, transmission, and demand side management resources available to the PJM system versus the expected PJM load requirements. Subject to PJM reliability requirements, the model determines if there is a need for new resources to meet load requirements and it selects the most cost-effective alternative based on the resource options available. The model also considers the impact of compliance with all outstanding environmental regulations (e.g., RGGI) and applicable Renewable Portfolio Standards.

As a result of the IPM® evaluation, an expected PJM integrated capacity expansion plan is produced. Because IPM® is an integrated planning model, DSM is included in the capacity expansion plan by IPM®. This means that the model simultaneously compares DSM options with supply side options. The resulting capacity expansion plan is expected in the sense that the plan is the least cost way to meet the PJM system requirements given all system constraints and environmental or legislative compliance requirements. Based upon the IPM® results for the Base Case, Table 1 below shows the expected total capacity by resource type for the PJM system for the selected years 2008- 2025.[11]

[11] Although the current IRP planning period only extends through 2016, the IPM® was run for later years as well as part of the RFP process.

Table 1 Base Case PJM Generation Capacity MW by Resource Type 2008-2025.

	2008	2009	2011	2013	2016	2020	2025
Coal	64,636	64,999	65,538	65,262	65,126	65,391	72,379
Nuclear	31,311	31,311	31,533	31,629	32,213	32,796	48,855
Cogen	7,636	7,465	7,465	7,464	7,465	7,463	7,459
Combined Cycle	18,563	19,168	19,168	19,168	19,168	21,350	22,511
Combustion Turbine	26,282	26,681	30,375	33,202	39,756	45,254	49,428
Oil/Gas	8,626	8,796	8,796	8,796	8,796	8,796	8,796
Hydro	2,679	2,679	2,679	2,679	2,679	2,679	2,679
Pumped Storage	4,803	4,803	4,803	4,798	4,784	4,777	4,772
Wind	1,141	5,090	7,647	7,677	8,791	8,791	8,850
Other	1,597	1,597	1,597	1,654	1,804	2,804	3,770
Total	167,274	172,589	179,601	182,329	190,582	200,101	229,499

Consistent with Delmarva's recommendation to acquire land-based wind resources for the SOS procurement portfolio, Table 1 shows that there is a large expected increase in wind capacity to be constructed in PJM in the next three years and beyond.

The basic structure of developing the risk management framework for actively managing an SOS procurement portfolio was described in some detail in Delmarva's March 5, 2008 updated IRP filing[12]. As also described in the IRP Update, a managed SOS procurement portfolio is an exercise in risk management and should rely upon current forward market prices and estimated volatilities to balance the sometimes competing objectives of reasonable prices

[12] See Delmarva's IRP Update, March 5, 2008 pps 78 - 103

and low volatility. Unfortunately, market data for forward price information can be of limited availability and credibility for future years, particularly once the planning horizon exceeds 3 – 4 years. EURSCA, however, requires Delmarva in its IRP to set forth the resource mix with which the Company proposes to meet its SOS supply obligations for the 10 year planning period. Consequently, in order to prepare a 10 year portfolio plan, Delmarva has used market data to develop the first several years portfolio and employed the IPM® model's projection of forward prices for the later periods to complete the development of specific managed SOS procurement portfolios for the entire planning period. Thus Delmarva's proposed portfolio is driven more by current market conditions in the early years of the plan and more by projected market fundamentals in the later years.

As described later in this document, the projected prices and market prices and their volatilities are used to guide the development of the SOS procurement portfolio for the base case and other potential long term stabilization scenarios. Delmarva anticipates that as market conditions and projections change and to the extent possible, the SOS procurement portfolio will also change in order to meet the risk management objectives of the portfolio concurrent with prevailing market conditions and projections. Consistent with the proposed IRP regulations, Delmarva expects to provide the Commission and State Agencies with an annual update of changes in the structure of the SOS procurement portfolio.

IV. ANALYSIS OF SOS PROCUREMENT PORTFOLIOS AND POTENTIAL LONG TERM STABILIZATION SCENARIOS

A. Summary of Results and Cases

As a base case, Delmarva has analyzed the performance of a portfolio systematically constructed of a blend of firm contracts, monthly firm on-peak contracts, and spot purchases, for procuring SOS electrical requirements over the years 2009-2016. The analysis assumes the proposed MAPP project is completed and that no new generation assets are located in Delaware (new generation will be added elsewhere in PJM). In addition, Delmarva has evaluated the impact of five potential long-term price stabilization scenarios. The Table below summarizes the base case and the five scenarios analyzed within this document:

Scenario No.	**Portfolio Description**
Base Case	Reliance on MAPP, no new Generation in Delaware over the Planning Period 2009-2016 (but new generation in PJM). Managed Portfolio consists of firm contracts for base energy, monthly contracts for blocks of peak energy, RECs and spot purchases.
Scenario I	Base Case assumptions plus long-term contracts for land based wind resources located within PJM beginning in 2010.
Scenario II	Scenario I assumptions plus a 100 MW regulated generation asset located in Delaware.
Scenario III	Scenario I assumptions plus a long term PPA for firm energy and capacity based on the 10 year levelized costs of a gas fired combined cycle generation resource.
Scenario IV	Base Case plus a long-term contract for 300MW of Bluewater Wind off-shore wind project beginning in 2014
Scenario V	Base Case plus a long-term contract for 300MW of Bluewater Wind off-shore wind project beginning in 2014 and a 195 MW back-up generation PPA

Delmarva believes that the evaluation of the set of cases discussed in this document provides sufficient coverage of the many wide ranging issues currently being reviewed by the State of Delaware in the effort to secure the energy future of SOS customers. Based upon requirements included in PSC orders, legislative policy, Delmarva's review of the expected price of the SOS procurement portfolio, the stability of the expected price, and the renewable resources obtained for the Company's Delaware customers, Delmarva recommends the adoption of Scenario I (Managed Portfolio plus long-term contracts for land based wind resources located within PJM beginning in 2010). Further, based upon the relatively close and favorable results for Scenario III (Managed Portfolio with longer-term firm contracts firm for capacity and energy), Delmarva recommends that the Commission allow Delmarva to conduct a market test to obtain current market information regarding the pricing of 5, 10 and 15 year long term contracts for firm energy and capacity for potential inclusion in the SOS procurement portfolio. Additionally, if the Commission finds that regulated generation (Scenario II)is in the public interest, then Delmarva should be authorized to conduct a generation feasibility study to review potential sites, costs, licensing and site specific infrastructure requirements.

Summaries of the portfolio management and long term stabilization scenario results are presented in Table1 and Table 2. Table 1 provides the expected total average cost and the expected price spread of the Base Case (Managed Portfolio) and for three long-term price stabilization scenarios. The managed portfolio that is part of the Base Case includes a blend of firm contracts (24X7 annual firm), monthly blocks of 50 Mw contracts for peak energy, Renewable Energy Credits, and spot market purchases.

Scenario I also includes a portfolio of land-base wind generation as part of the managed portfolio. Although Scenario I causes a slight increase in the portfolio's expected total cost, it does provide a reduction in the price volatility of the portfolio (as measured by the expected price spread). Scenario I is the most economic of the long term stabilization scenarios evaluated and offers the benefits of wind resources and price stability. Scenarios IV and V, which include Bluewater Wind (IV) and Bluewater Wind with a back-up generator PPA (V) also provide improvements in price stability but this is achieved at a very high cost. **Relative to Scenario I, the land based wind scenario recommended by the Company, the Bluewater alone (Scenario IV) and hybrid (Scenario V) both increase the expected average cost of the SOS procurement portfolio by over 27% in both 2015 and 2016**

Table 1
Long-Term Price Stabilization Scenarios

	Results ($/MWH)	Settlement Period (June-May)					
		2009/10	2010/11	2011/12	2014/15	2015/16	2016/17
Base Case - Managed Portfolio	Expected Total Average Costs	$97.62	$99.61	$104.49	$105.73	$106.63	$106.99
	Expected Price Spread	$26.81	$32.04	$34.88	$23.43	$28.91	$32.79
Scenario I - Managed Portfolio plus Land-Based Wind Contracts	Expected Total Average Costs	-	$100.65	$105.99	$106.12	$107.02	$107.76
	Expected Price Spread	-	$29.41	$31.40	$19.83	$24.62	$27.29
Scenario IV - Managed Portfolio plus BWW	Expected Total Average Costs	-	-	-	$134.76	$136.31	$137.77
	Expected Price Spread	-	-	-	$13.04	$17.05	$19.28
Scenario V - Managed Portfolio plus BWW Hybrid	Expected Total Average Costs	-	-	-	$136.04	$136.33	$137.50
	Expected Price Spread	-	-	-	$13.16	$15.84	$17.61

Note: The Expected Price Spread is the difference between the 90th and 10th percentile average costs.

In Table 2, the impacts on expected price and price stability for two additional long term stabilization scenarios are presented. The two additional scenarios evaluated include adding a regulated generating asset to the managed portfolio (Scenario II) and the addition of a longer-term firm contract to the managed portfolio (Scenario III). In Scenario II, a generic 100MW combustion turbine (CT) was added to the portfolio. This causes a small reduction in the expected total average cost and improved price stability relative to Scenario I in the near-term. In the longer term the expected cost is slightly above Scenario II and the price stability is still improved. In Scenario III, the 100MW of firm annual energy contracts are replaced with a generic 10 year long-term contract. Because these contracts are not actively traded the price of the long-term contract was assumed to be the levelized carrying cost of a combined cycle unit plus the operating cost of a combined cycle unit with gas prices locked in at current rates with a forward contract. Delmarva believes that the results shown in Table 2 suggest that both regulated generation option and longer term firm fixed contract deserve further exploration to determine feasibility, long term costs, and portfolio effects.

Table 2
Long-Term Portfolio Hedging Options

	Results ($/MWH)	Settlement Period (June-May)					
		2009/10	2010/11	2011/12	2014/15	2015/16	2016/17
Scenario I - Managed Portfolio plus Land-Based Wind Contracts	Expected Total Average Costs	$97.62	$100.65	$105.99	$106.12	$107.02	$107.76
	Expected Price Spread	$26.81	$29.41	$31.40	$19.83	$24.62	$27.29
Scenario II - Scenario I plus Regulated Asset (CT)	Expected Total Average Costs	-	$99.45	$104.55	$106.95	$107.56	$108.14
	Expected Price Spread	-	$22.36	$24.23	$16.87	$21.92	$24.23
Scenario III - Scenario I with Longer Term Firm Contracts	Expected Total Average Costs	-	$103.73	$108.68	$107.87	$108.46	$109.02
	Expected Price Spread	-	$29.43	$31.36	$19.83	$24.62	$27.29

Note: The Expected Price Spread is the difference between the 90th and 10th percentile average costs.

B. Recommended SOS Procurement Portfolio Resources by Year

Delmarva recommends using several types of contract instruments and purchases in managing a portfolio to secure electrical resources for SOS customers[13]. These instruments and purchases include the following:

1. Contracts for firm energy and capacity with no load following. These contracts would be for round-the-clock, 24 X 7, fixed energy to meet the portfolio base load requirements. Delmarva recommends a total size of 100 MW by 2010 to cover the base portion of SOS customer load. Delmarva recommends a total size of 100 Mw to cover the base portion of SOS customer load.

2. Monthly Contracts for 50 MW blocks of peak energy.[14] Delmarva would actively manage the purchase of these monthly forward contracts to closely match expected SOS customer on-peak period loads. For the Managed Portfolio evaluation presented herein, 50 MW blocks of on-peak energy were purchased so that 90% on each month's expected on-peak energy requirements were meet through forward purchases. Delmarva

[13] As noted in the March 5, 2008 Update to the IRP, Delmarva is willing to explore alternative portfolio designs within the proposed Collaborative Working Group.
[14] 50 MW is the standard contract amount in the PJM wholesale market.

expects to use a dollar cost averaging (DCA) technique in purchasing these contracts beginning about a year in advance of delivery.

3. Spot Market Purchases. Due to customer load uncertainty and the fixed block nature of other peak period products in the portfolio, Delmarva will need to rely on the spot market for some peak period purchases (or sales) to balance the energy from renewables, forward purchase and other long-term contracts to the actual customer load that occur in any given hour. Delmarva also anticipates taking advantage of lower off-peak spot prices by purchasing all of the portfolios' off peak energy requirements not otherwise procured through the firm "base" contracts with spot purchase.

4. Land Based Wind Contracts. Delmarva recommends obtaining renewable energy and REC's for the SOS customer portfolio through long term contracts with land based wind suppliers. Obtaining wind from competitively bid land based sources takes advantage of a diverse set of facilities and lower prices than off-shore wind facilities. Because wind is an intermittent generating resource, the amount of energy received in any one hour can vary. Delmarva anticipates using wind energy to displace spot purchases.

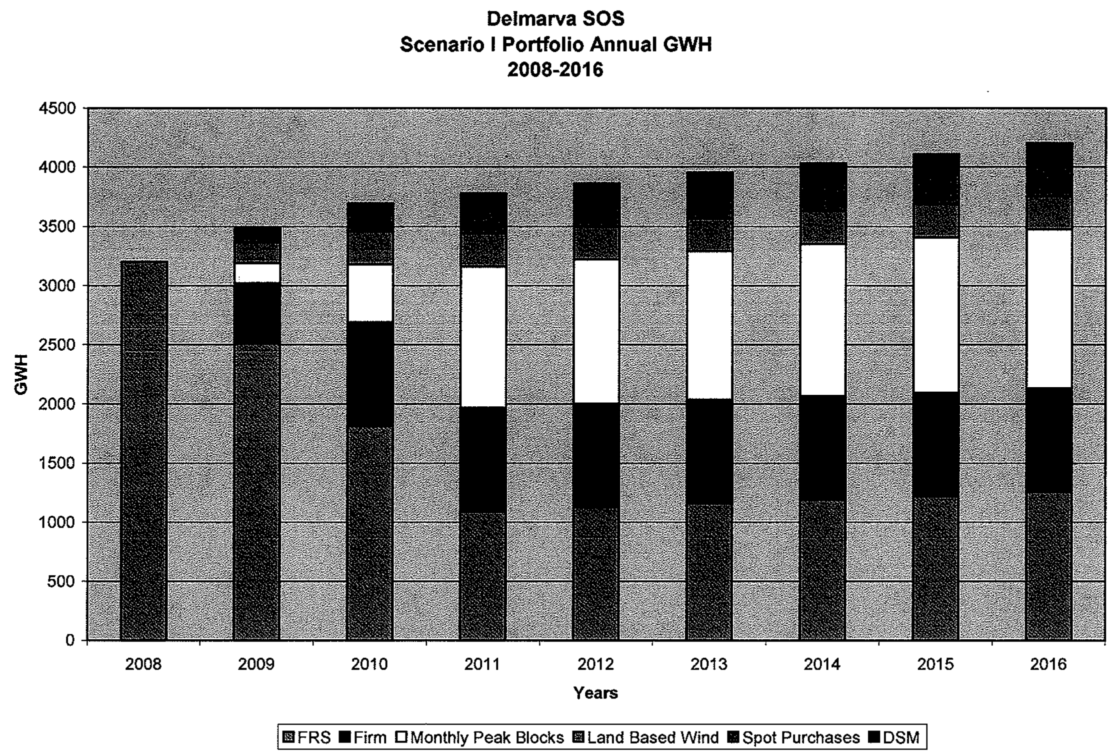
5. Full Requirements Service (FRS) Contracts. FRS contracts are the market based product that Delmarva currently procures through the Commission approved auction process. Delmarva is not recommending that FRS contracts be used as part of the *actively* managed SOS procurement portfolio. However, EURCSA specifies that at least 30% of the SOS

requirements be sourced from the wholesale market. The current FRS contracts satisfy this requirement for the portion of SOS requirements that is not subject to active portfolio management. The procurement cost of the FRS contracts is the same for all cases and portfolios evaluated and therefore the cost of these contracts are not presented as part of this filing.

6. DSM. The total amount of resources to be procured in any one year is affected by the amount of DSM, both Energy Efficiency measures and Demand Response. While DSM is not actively managed in the same sense that other portfolio instruments are, it is an important and cost effective resource.

The recommended resource mix for Delmarva's SOS procurement portfolio is comprised of the six components described above. The Chart below provides the specific composition of the total portfolio for SOS procurement for each year in the planning period 2008- 2016.[15]

[15] As noted herein, Delmarva recommends performing a market test, to obtain market information related to longer term firm contracts for possible inclusion within the SOS procurement portfolio.



Any portfolio management strategy employed by Delmarva will be monitored at regular intervals to help ensure that the objectives of maintaining reasonable prices and price stability are being achieved as market conditions change.

C. Model Development

The portfolio results presented in this filing were prepared by the Brattle Group. An overview of Delmarva's conceptual approach to portfolio modeling and construction was provided in the March 5, 2008 IRP Update. A more detailed description of the model development, assumptions and simulation results is forthcoming and will be presented as Appendix II to this IRP.

V. COST RECOVERY

EURCSA stated the following:

"Subject to the approval of the Commission, the Standard Offer Service Provider to meet its electric supply requirements shall have the ability to:

(1) enter into short and long-term contracts for the procurement of power necessary to serve its customers;

(2) own and operate facilities for the generation of electric power;

(3) build generation and transmission facilities (subject to any other requirements in any other section of the Delaware Code regarding siting, etc);

(4) make investments in Demand-Side resources, and

(5) take any other Commission approved action to diversify their retail load."

In order to take such action, DP&L as a Standard Offer Service Supplier must file an application with the Commission or have had such action approved as part of its Integrated Resource Plan...If DP&L as a Standard Offer Service Supplier files an application under this subsection, then the Commission shall hold an evidentiary hearing on DP&L's request and shall approve the request if the Commission finds that such action is in the public interest. If the Commission approves such a request, the Commission shall review all reasonable incurred costs of the contracts, facilities or programs in accordance with Chapter 1, Subchapter 3 of this Title. Costs from these projects shall be included as Standard Offer Service rates." [16]

EURSCA further directed:

"After a hearing and a determination that it is in the public interest, the Commission is authorized to restrict retail competition and/or add a non-bypassable charge to protect the customers of the Electric Distribution Company receiving Standard Offer Service. The General Assembly recognizes that the Electric Distribution companies are now required to provide Standard Offer Service to many customers who may not have the opportunity to choose their own Electric Supplier. Consequently it is necessary to protect these customers from substantial migration away from Standard Offer Service, whereupon they may be forced to share too great a

[16] See EURSCA pp.4 lines 87 - 101

> share of the cost of the fixed assets that are necessary to serve them as required by this Act."[17]

Clearly, EURCSA authorizes the Commission both the authority to 1) allow cost recovery for actions taken by DPL in pursuit of the directives of EURCSA, and 2) restrict customer choice and/or implement a non-bypassable charges. It also allows the Company to either request approval of cost recovery through the IRP process or through a separate application. Because Delmarva is not requesting approval of any specific short or long term contract within this filing, the Company is not requesting approval at this time of the cost recovery, customer choice and non-bypassable charges proposals presented herein. The cost recovery, customer choice and non-bypassable charge proposals contained herein do provide the Company's current position on these issues and (without the benefit of any input received from the other stakeholders in the originally proposed collaborative working group) represent what the Company plans on filing in a separate application when the Company seeks approval of its land based wind PPA resulting from the current RFP for land based wind contracts. The Company does not object to discussing these proposals further in a collaborative process, but the parties should understand that timing is critical.

Delmarva notes that the issue of cost-recovery is likely to be far from trivial. A resolution has already passed the Delaware House of Representatives that would have the Controller General vote for a contract requiring Delmarva to purchase up to 300 Mw for 25 years from the proposed BlueWater Wind off shore wind facility. A similar resolution is currently before the Delaware Senate.

VI. COST RECOVERY PROPOSAL

A. Availability

[17] See EURSCA pp 8 lines 201 - 206

The Company proposes that availability of SOS continue as provided under the current tariff provisions.

B. Procurement

Residential and small commercial customers have not chosen alternative suppliers to provide generation services in significant numbers. Less than 4% of residential and small commercial customers have chosen an alternative supplier. In contrast, over 65% of the large commercial load is served by alternative suppliers. This is due in large part to the fact that there are fewer suppliers offering competitive offers to residential and small commercial customers (5) versus those marketing to large commercial customers (17).

Due to the robust large commercial market, the Company proposes to continue procurement of generation services for large commercial customers using an RFP to acquire one year contracts from wholesale providers.

Because residential and small commercial customers are both less likely to receive a competitive offer from alternative suppliers and also less likely to choose an alternative supplier, the Company proposes to procure generation services for these customers through a portfolio of sources which as described in prior sections of this document. As part of this portfolio procurement process, longer term contracts shall be obtained through a Commission approved process and subject to Commission approval similar to the approvals process for the current SOS procurement process as established by the Commission orders in Docket No. 04-391. Shorter term contracts and purchases will be made within the guidelines for the portfolio approved by the Commission.

C. Pricing

Pricing of SOS needs to reflect the costs associated with the energy used as closely as practical. Under the current SOS structure, the seasonal (winter and summer) bids received from the RFP procurement are allocated to the appropriate rate class blocks which were established prior to the implementation of market based SOS rates. A procurement portfolio strategy, which could evolve as required, will include spot market purchases as well as a portfolio of contracts and other instruments, including those needed to meet the RPS requirements. This strategy requires more responsive pricing. As part of the implementation of a procurement portfolio, the Company proposes to set rates to more accurately match the costs of generation to the usage. To accomplish this, the Company proposes the following:

First, the company proposes to reset rates quarterly. Historically, prices are higher in the summer and the winter with somewhat lower prices in the shoulder months. Quarterly pricing would allow better matching of rates to seasonal price changes. The Company proposes to move to a process, to be approved by the Commission, in which the tariff rate is automatically updated by the Company and billed to customers without Commission pre-approvals and formal notice. Under this proposal, the Company would submit proposed pricing along with supporting documentation at least sixty (60) days prior to the effective date. Rates would become effective subject to refund (through the Procurement Cost Adjustment which is described below) on the first of each quarter and would be noticed to customers through a bill insert and posting to the Company's website. The quarters would begin June 1, September 1, December 1, and March 1 of each year. Prices would reflect current contracts in place as well as a forecast of costs for hourly and other short term market purchases.

Second, the Company proposes the elimination of usage blocks (i.e., 1st 100 kWh). These blocks reflect cost structures that were relevant prior to the implementation of market based SOS but are not useful today.

Third, the Company proposes to price capacity costs through a generation customer charge that would be based on customers' PJM peak load contribution (PLC). This is because capacity costs have become a more significant part of total supply costs.

Pricing options need to remain flexible in order to adapt to changing price patterns and technological capabilities. As the Company is able to implement advanced metering infrastructure (AMI), then pricing block options which could include time of use, hourly, and/or critical peak pricing may be adopted.

From a pricing perspective, the change from the current RFP procurement method to the portfolio will require a transition period. The Company currently has rolling three year contracts with wholesale suppliers with the longest outstanding contracts expiring May 31, 2011. As each set of contracts expire, it would be replaced using the portfolio procurement method. Also, the portfolio procurement method will create additional costs above and beyond the costs of the energy contracts. These include, but are not limited to, costs associated with credit support, as well as "mark to market" issues (i.e. assigning current market value to positions held), and additional infrastructure such as IT systems and additional personnel to manage the portfolio.

These costs should be included in the Reasonable Allowance for Retail Margin ("RARM") which is employed currently with SOS. The RARM mechanism is currently comprised of the following components: a) incremental expenses incurred: i) to provide fixed priced SOS ("FP-SOS") and hourly priced service ("HPS"); ii) to administer the Volumetric Risk Mitigation ("VRM") mechanism applicable to FP-SOS customer load; and iii) carrying costs on Cash Working Capital ("CWC") for FP-SOS and HPS; b) $2.75 million per 12 month period; and c) for GS-T customers and those in the GS-P class that elect HPS, the allocable share of the above categories. The incremental costs include uncollectibles related to the provision of SOS.

The Company proposes that these additional costs associated with the portfolio procurement method would be incremental expenses incurred to provide SOS and should therefore be included in the calculation of the RARM.

Discussion of several of these issues could begin prior to the approval of this IRP. Each year the Commission Staff conducts a procurement improvement process ("PIP") working group. We recommend that these issues be discussed further as part of this process.

D. True-ups (Procurement Cost Adjustment)

Currently differences in stated versus actual line losses as well as unaccounted for energy ("UFE") create differences in what is paid for the supply of electricity and what is collected from SOS customers. Also under the current SOS pricing system, there are differences created from converting wholesale bids into the block prices as discussed earlier. Currently, these differences are reviewed annually and a procurement costs adjustment ("PCA") charge or credit is instituted for the following year. The PCA is readjusted annually in subsequent years.

With the adoption of the portfolio procurement method, periodic changes in the portfolio as well as the use of spot market to ensure proper load following will also create differences that will require true-ups. Even though the portfolio procurement method may create more long-term price stability, the use of spot market as part of that portfolio can create more month to month fluctuations.

If not addressed for longer periods of time, the differences can build up and create significant price changes from year to year. An example of this is the SOS service for the Delmarva Delaware LGS class. After the first year of SOS the PCA had developed into a large credit for the LGS SOS customers. This over-collected amount was returned to the LGS SOS customers during the second year of SOS. However, the large credit also led to some LGS customers, which had chosen an alternative retail supplier, returning to SOS. Because the PCA was a credit and more customer returned than had been forecast, the next year the PCA was a charge to LGS SOS customers. This year to year swing in the PCA helped create a 17% annual bill increase to those customers in one year.

These swings in SOS prices can keep retail suppliers from making offers. One year they may be competitive and the next year they may be priced out of the market. Given that customer acquisition costs can be significant, they may choose to devote resources to other regions.

To avoid this in the future, the Company proposes to move to a system in which the PCA tariff rate is automatically updated monthly by the Company and billed to customers without Commission pre-approvals and formal notice. Rate changes related to the PCA would be posted to the Company website prior to the beginning of each month. The difference between what is paid for supply and transmission and what is billed to customers for those services is put into a deferral account. Each month the total amount in the deferral account will be divided by a forecast of kWh sales for the next twelve (12) months. These calculations will be subject to review by Staff at any time.

This proposed process is similar to the process that is currently employed in both Maryland and the District of Columbia. It has been successful in keeping the PCA from becoming a significant issue. In both jurisdictions, the PCA calculation is subject to Staff audit.

As with several of the pricing issues, we recommend that this issue also be added to the agenda for this year's PIP.

E. <u>Migration Risks</u>

When generation assets, which may include contracts and other instruments as well as physical assets, are procured for a period of time for a particular load requirement, and that load migrates to another supplier, and the generation assets are worth less that what was paid for them, stranded costs are created. If these stranded costs are passed on to the remaining SOS customers the cost of SOS service is driven up, encouraging more migration and more stranded costs.

Title 26, Chapter 10, §1010 (c) provides the Commission with the authority to restrict retail competition and/or add a non-bypassable charge in order to protect customers receiving SOS. In order to protect customers in the event of significant migration that creates stranded costs, the Company proposes to put into place a non-bypassable charge that would be triggered in the event that customer migration out of SOS creates a situation in which the generation procurement portfolio contractually and/or physically has more energy and capacity to serve SOS load than is needed and that as a result SOS prices, in the absence of the non-bypassable charge, would increase by more than five percent (5%).

In order to trigger the mechanism, the Company would submit a filing to the Commission showing both the migration away from SOS, the stranded costs created by this migration, and the effect these costs would have on SOS prices.

The Company believes that this mechanism is the appropriate means to ensure that migration does not adversely affect the provision of SOS. First, it allows customers who have chosen alternative suppliers to remain with those suppliers. Second, it allows customers the opportunity to continue to seek alternatives if they choose. Finally, it does not immediately create any additional burden as the mechanism would not be used unless circumstances require its implementation.

F. Regulated Physical Generation Assets to Supply SOS

Although the Company does not recommend the building of physical generation assets to meet the needs of SOS load in Delaware for this IRP, it does recognize that the Commission may require or that at some time in the future it may be appropriate to build, own, and operate such assets for reliability purposes. An important part of that process is developing a clear understanding of the process for how such assets will be operated for the benefit of SOS and how cost recovery will be treated for these assets.

Any generation assets operated within PJM are bid into the pool and dispatched by PJM. The assets cannot be operated just to serve SOS load. Therefore the economically efficient way to operate such an asset is to sell the energy and capacity from the asset into the market. The proceeds from operation of the plant would be netted against the costs of running the plant including a reasonable return as set by the Commission in hearings.

The net amount would be placed in a deferral account that would be used to calculate an on-going non-bypassable surcharge applicable to all customers eligible for SOS. Please note that the net amount could be either a benefit or a cost at any point in time. The surcharge would be calculated by taking the cumulative amount in the deferral account plus interest (calculated at the utility's most recent authorized rate of return) divided by a twelve (12) month forecast of kWh sales for all customers eligible for SOS service.

G. <u>Regulated Physical Generation Assets for Reliability</u>

Although the Company does not recommend the building of physical generation assets to meet reliability needs, if the Commission determines that this is in the public interest, then a surcharge will be required to cover all of the costs incurred in owning and operating the generation. Since the generation is required for reliability reasons, the generation will benefit all of Delmarva's customers and the net costs should be recovered in a non-bypassable surcharge charged to all Delmarva customers. The generation would be operated and the net costs determined in the same manner described above for Regulated Physical Generation to Supply SOS. However, the net costs will be recovered over all the customers, regardless of whether they receive SOS service, since all customers receive the reliability benefit.

H. Renewable Portfolio Standards (RPS) Costs

The Company proposes purchasing renewable energy to meet Delaware's RPS requirements for all Delaware customers. This would better encourage the development of new renewable resources and allow more Commission oversight. The Company will provide a more detailed proposal shortly. As part of that proposal, the Company proposes to recover the costs for the RPS costs through a non-bypassable surcharge. The Company recognizes that there will be the need for a transitional period. Some customers may have already procured their RPS requirements and would be dealt with on a case by case basis.

VII. RESOURCE OPTION ANALYSIS

A. Analysis

EURCSA notes that Delmarva may consider the economic and environmental value of the following items in developing an IRP:

1. resources that utilize new or innovative baseload technologies;
2. resources that provide short- or long-term environmental benefits;
3. facilities that have existing fuel and transmission infrastructures;
4. facilities that use existing brownfield or industrial sites;
5. resources that promote fuel diversity;
6. resources or facilities that support or improve reliability;
7. resources that encourage price stability.

As part of the update to the IRP filed March 5, 2008, Delmarva provided a review of numerous resource options that could provide electricity supply for SOS customers.

The resource options reviewed in the March 5, 2008 IRP update included both physical asset resources and contract resources[18]. Also, as noted in that filing, Delmarva concluded that no one resource was the magic "silver bullet" to meet all needs; rather a combination and balance of resources is needed. This conclusion is supported by the capacity expansion results of the IPM® model for the PJM system as described earlier in this document. The IPM model ® evaluates and selects supply and DSM resources as needed to best meet the load forecast, reliability criteria, environmental regulations and legislative compliance. As shown earlier in Table 1, the projected optimum capacity expansion plan for the PJM system includes expected additions of wind, combustion turbines, combined cycles, nuclear, and other resources.

The potential contract resources identified in the March 5, 2008 IRP update included the following:

1. Full Requirements Service (FRS)
2. Firm Energy (no load following)
3. Forward Contracts
4. Unit Contingent Energy and Capacity
5. Spot Market Purchases
6. Options

FRS contracts are currently used to supply SOS procurement needs but are not actively managed within a portfolio. These contracts have been reviewed in previous IRP filings. Firm, monthly forward and spot contracts are all evaluated as part of the portfolio associated with the base case. Scenario I includes the evaluation of unit contingent land based wind contracts within the portfolio. Scenario IV includes a unit contingent contract with BWW. A regulated

[18] Physical asset resources were reviewed in Table RO-1 (pps. 58-62) and contract resources were reviewed in Table RO-2 (pps 63-64) of the March 5 Update IRP.

combustion turbine, essentially a call option on capacity and energy, is evaluated as part of the portfolio associated with Scenario II.

Additional details on the physical resource options evaluated within the IRP as they relate to the specific attributes identified by EURCSA are provided below. Delmarva has also provided an overview of some of the key risks associated with each resource.

Delmarva notes that two of the EURCSA attributes are facility (or site) specific: 1) facilities that have existing fuel and transmission infrastructures, and; 2) facilities that use existing brownfield or industrial sites. A discussion of these two attributes, together with a discussion of the ability of a resource-type to support or improve reliability, is included in the specific resource-type narratives below.

The remaining four attributes for each technology – new or innovative baseload, short- or long-term environmental benefits, fuel diversity and price stability – are comparatively rated using a 7-point scale of 0-6. In the rating scheme employed, a "6" is a highly favorable score for that attribute while a "0" is the least favorable score for that attribute. In order to facilitate the comparison of attributes and risks among resource types, "spider diagrams" are presented for the attributes and risks associated with each resource type. The spider diagrams visually depict the ratings of the various attributes and risks for each resource. The more completely the spider diagram is "filled in" the more favorable the resource is relative to the EURCSA specified attributes. In completing the spider diagrams Delmarva included two additional attributes – construction costs ($/kW) and operating costs ($/kwh). This information is also provided in the individual resource-type narratives.

The spider diagram ratings for the EURCSA attributes are based on the following general rating criteria where "6" is the highest rating and "0" is the lowest rating:

Technology Attribute	**Low Rating Lowest = "0"**	**High Rating Highest = "6"**
Construction Cost ($/kw)	High installed costs	Low installed costs
Operating Cost ($/kwh)	High operating costs	Low operating costs
Price Stability	Volatility of energy price over time expected to be high	Volatility of energy price over time expected to be low
Environment	High impact on the environment (land, air, water)	Low impact on the environment (land, air, water)
Fuel Diversity	Does not add to the fuel diversity of the PJM power pool	Adds to the fuel diversity of the PJM power pool
Baseload Technology	Using an existing, widely used baseload technology	Uses a baseload technology substantively different from existing baseload technologies

B. <u>Risk Analysis</u>

In addition to reviewing the EURCSA attributes relative to the resource options evaluated within the IPM ® model, Delmarva has conducted a similar review of some of the key risks associated with each resource. Using the same "spider diagram" approach described above, each of the resource options was rated on five high level risk factors; technology, construction, operating, fuel availability and environmental. A description of the risk attributes and the criteria used for rating these attributes is provided below:

Risk Attribute	Low Rating Lowest Rating = "0"	High Rating Highest Rating = "6"
Technology	Technology with few installed units and without substantial commercial history	Technology with many installed units and considerable commercial record
Construction	Little US experience in technology type construction or lack of available skilled craftsmen	Long US experience in technology type construction and readily available construction personnel
Operating	Little US experience in operating technology. Operating procedures not well documented and operator training not fully developed	Long US experience in operating technology. Operating procedures well documented and readily available operator training.
Fuel Availability	Fuel not readily available or possibility of future supply constraints	Fuel readily available without future supply constraints
Environmental	Future legislation/regulation may add substantial construction and/or operating expense	Unlikely that future legislation/regulation will have an impact on construction and/or operating expense

The prices on each resource sheet below, for both capital and operating costs, are not specific to Delaware or to any specific site or existing resource. These are generic costs based on available industry data.

C. <u>SOS Resource Type</u>

<u>Pulverized Coal</u>

Capital Cost/kW: $2,200 - 2700

Fixed O&M Costs/ MWH: $37.00 – 40.00

Variable O&M Costs/ MWH: $2.30 – 2.50

Heat Rate: 9,400 – 9600 BTU/kWh

Availability: 80 - 90%

Description: Pulverized coal plants convert chemical energy (contained in coal) into thermal energy (steam) in a boiler, and, through a turbine/generator, steam to electricity Pulverized coal plants are the most common plant types in the United States for producing electric energy, in large part because the country has an abundance of readily available, affordable coal and the technology "matured" decades ago. (Note: there is ongoing research in the development of "clean coal" technology – but the basic cycle of converting coal to electricity remains unchanged).

Electric utilities and other power generating entities have decades of experience in building and operating pulverized coal fired plants, so the "risk" associated with building and operating plants of this technology is minimal.

Boilers designed to burn pulverized coal can also be designed to burn oil or natural gas as alternate fuels. Individual boilers can be sized to have a generating capacity of between 200 to 800 megawatts (MW).

Capital costs for coal plant construction are moderately high, with the trade-off that they have relatively low marginal operating costs. (The most efficient plants have the highest capital costs but the lowest marginal operating costs).

The economics of larger coal plants put them in the "base load" category, which means, because of their low marginal costs, they tend to generate electricity 24 hours/day for days at a time, often stopping only for planned or unplanned (forced) maintenance outages. Smaller plants can be designed to "load follow," which means they can raise and lower energy production to match system electric demand ("load"). (Since load following adds costs to plant operations, it makes economic sense to let larger, lower cost plants operate at full capacity).

The major issues facing a new coal plant today are environmental, most of which concern the pollutants emitted from coal combustion. Current federally regulated emissions include particulates, NOx and SO2. Federal regulation of mercury and carbon dioxide emissions is anticipated, while some states (including Delaware) have recently initiated mercury and CO2 emissions limits on a regional basis. While the costs for limiting CO2 emission are not known at this time, there is little doubt they will add to the capital and marginal costs of producing energy from coal burning plants. All emission issues associated with SO2, NOx, particulates and mercury are controllable with existing technologies. CO2 emission controls remain problematic.

Site Specific Characteristics

Existing fuel/transmission Infrastructure: Pulverized coal plants need rail access for coal delivery. While new plants would not have to be built at existing transmission interconnection sites – such a location would facilitate site permitting and lower overall capital costs. Coal plants need access to water for condensing the steam from the turbine generators.

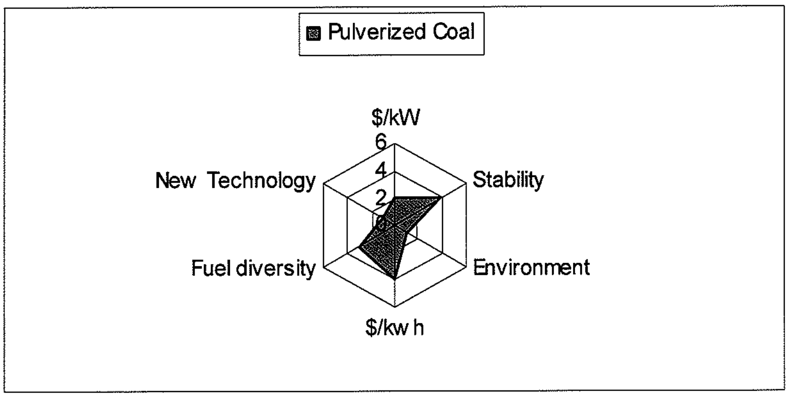
Brownfield suitability: Pulverized coal plants are suitable for sites with moderate to significant levels of contamination.

Support or Improve Reliability: Pulverized coal plants are very reliable and thus new plants would generally increase system reliability.

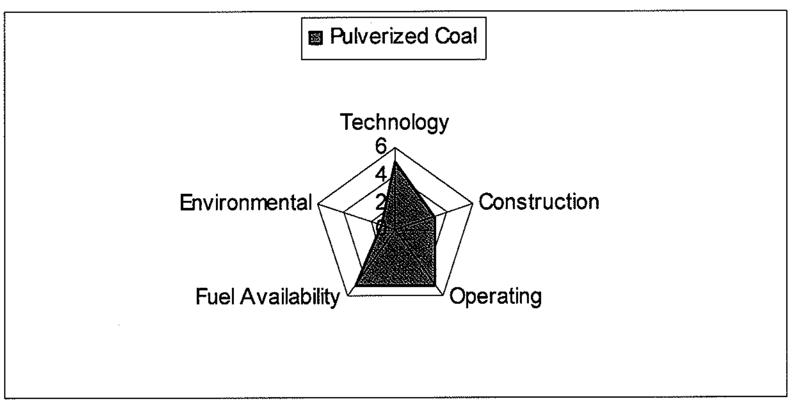
DE IRP Opportunity

The economics and the environmental impacts of a Delaware pulverized coal resource do not match Delaware's SOS supply needs and the SOS load does not justify construction of a coal plant of any size. Economics of coal fired generation become less favorable as the size of plant decreases.

Economic and Environmental Values



Risk Levels



Resource Type	Technology	Construction	Operating	Fuel Availability	Environmental
Pulverized Coal	**Low** – A common, proven technology,	**Medium** – aging workforce has led to shortages of craft labor – e.g. boilermakers and millwrights	**Low** – millions of hours of operating experience	**Low** – domestic coal is an abundant resource	**High** – likely future emissions control requirements for mercury and carbon dioxide could add substantial costs to plant construction and operating costs

Combined Cycle Gas Turbine (CCGT)

Capital Cost/kW: $900 - 1000

Fixed O&M Costs/ MWH: $14 – 16

Variable O&M Costs/ MWH: $3.6

Heat Rate: 7,000 BTU/kWh

Availability: 90 - 95%

Description: CCGTs combine combustion turbine (CT – see description) technology with a heat recovery/steam cycle. The heat recovery system captures the CT exhaust heat to produce steam, which powers a turbine/generator set to produce electricity. The efficiency of this technology is clear from the heat rate – one of the lowest of the fossil technologies reviewed here.

Electric utilities and other power generating entities have thousands of hours of experience in building and operating CCGTs, so the operating risk associated with this technology is minimal.

Capital costs for CT construction are moderate, as are operating costs (variable O&M), making CCGT plants one of the most common plant types built in recent years. Plants are generally built in block sizes ranging from 450 megawatts (MW) to 600 MW.

The major issue facing CCGTs is the high cost of natural gas and distillate fuel (distillate fuel can be used as a back-up fuel when natural gas is not available).

Site Specific Characteristics

Existing fuel/transmission Infrastructure: CCGTs need access to natural gas transmission pipelines, high voltage transmission lines and cooling water for the condensing turbine.

Brownfield suitability: CCGT plants are suitable for sites with moderate to significant levels of contamination

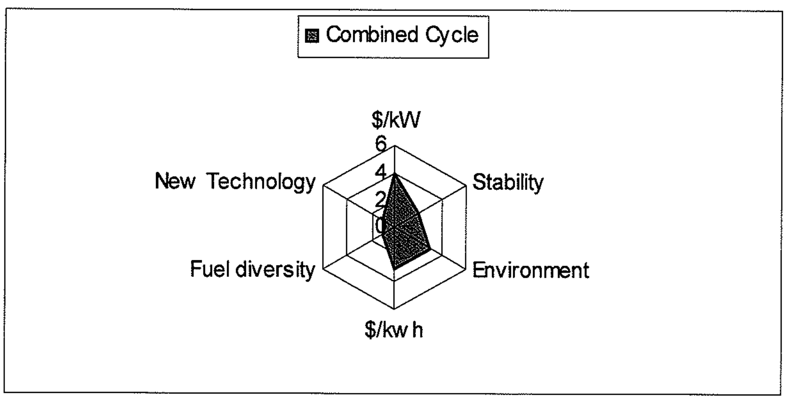
Support or Improve Reliability: CCGT plants are very reliable as noted by the high availability rate and thus new plants would generally increase system reliability.

DE IRP Opportunity

While a Delaware CCGT plant could provide reliability support and a hedge against rising energy costs, a typical CCGT is large relative to the needs of Delmarva's SOS Customers.

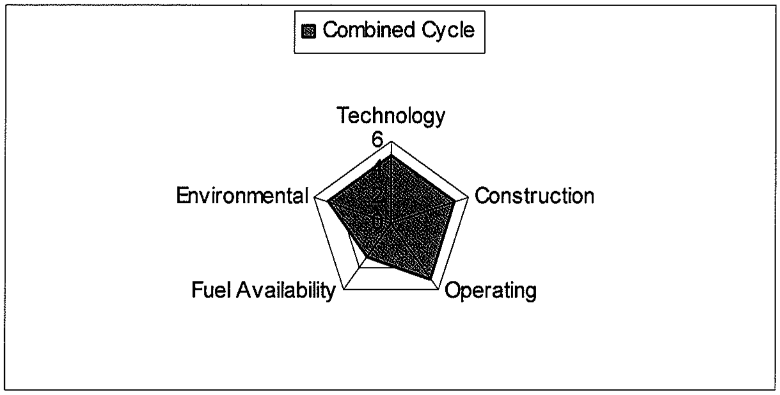
Economic and Environmental Values

CCGT plants generally have low carbon footprints due to the use of natural gas as the primary fuel. They are low emitters of particulates, SO2 and NOx and have no mercury emissions. There are no significant waste by-products from the operation of CCGTs. These plants are only moderately expensive to construct and can be in-service in a reasonably short timeframe from project inception.



Risk Levels

These plants do not always have alternate fuel back-ups. During high demand periods for natural gas, especially during the winter months, natural gas may not be available for electric generation.



Resource Type	Technology	Construction	Operating	Fuel Availability	Environmental
Combined cycle	**Low** – a common, proven technology	**Low** – a number of these plants have been built in recent years	**Low** – millions of hours of operating experience	**Medium** – natural gas availability is uncertain in the medium to long term.	**Low** – NOX and CO2 emissions are low

Nuclear

Capital Cost/kW: $4,500 – 6,000

Fixed O&M Costs/ MWH: $130

Variable O&M Costs/ MWH: $2.30 – 2.50

Heat Rate: 10,400 BTU/kWh

Availability: 85-90%

Description: Nuclear plants use heat from the nuclear fission of uranium to convert water to steam and, through a turbine/generator, steam to electricity

Nuclear plants are the second most common plant types in the United States for producing electric energy; uranium is available and affordable and the marginal costs of electricity production are low. Reactors are usually sized at minimum generation output levels above 800 megawatts (MW) and are often over 1100 MW to take advantage of economies of scale.

Electric utilities and other power generating entities have decades of experience in building and operating nuclear plants.
Capital costs for nuclear plant construction are quite high and no new nuclear plants have been built in the United States for over 25 years.

The economics of nuclear plants put them in the "base load" category, which means, because of their low marginal costs, they tend to generate electricity 24 hours/day for days at a time

The major issues facing nuclear plants are high capital costs, the lack of any long term storage capacity for spent nuclear fuel and a generally negative public perception.

Site Specific Characteristics

Existing fuel/transmission Infrastructure: While new plants would not have to be built at existing transmission interconnection sites – such a location would facilitate site permitting and lower overall capital costs. Nuclear plants need access to water for condensing the steam from the turbine generators.

Brownfield suitability: Nuclear coal plants are suitable for sites with moderate to significant levels of contamination.

Support or Improve Reliability: Nuclear plants are very reliable and thus new plants would generally increase system reliability.

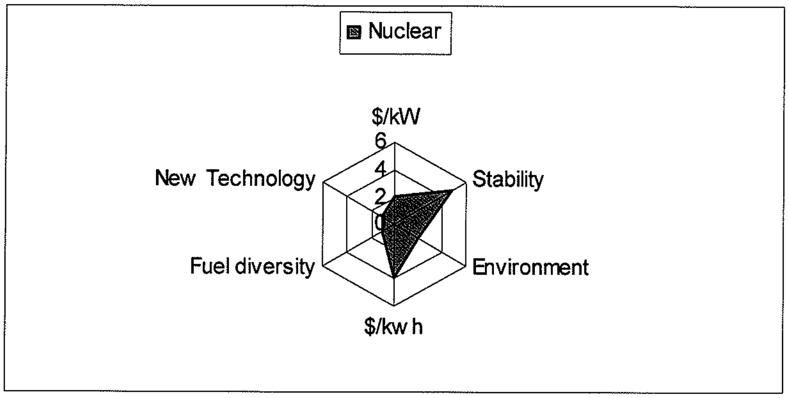
DE IRP Opportunity

The economics of a potential Delaware nuclear resource do not match Delaware's SOS supply needs and the SOS load does not justify construction of a nuclear plant. Nuclear plants are not at all economic when built in smaller sizes.

Economic and Environmental Values

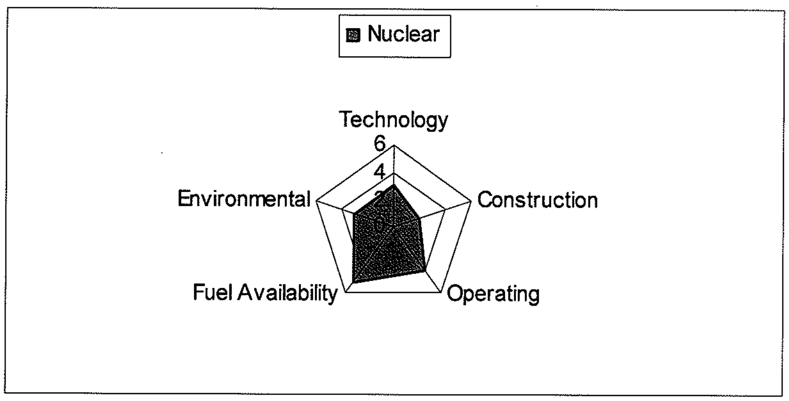
The operating economics of nuclear power create significant values because of the relatively low fuel costs. Nuclear plants are the lowest emitting type of generating plant that uses any consumptive fuel. Environmental emissions of NOx, SO2, particulates, mercury and CO2 are non-existent. Nuclear plants have a long term waste disposal issue for spent nuclear fuel that remains a national issue in the United States.

Recognition of the potential use of nuclear power is gaining as a potential alternative to greenhouse gas creating generation methodologies.



Risk Levels

Generally, there have been high risk levels associated with the construction of nuclear plants. Federal subsidies have been associated with the construction and operation of this type plant. Potential exists for nuclear accidents which cause public perception to be negative.



Resource Type	Technology	Construction	Operating	Fuel Availability	Environmental
Nuclear	**Medium** – many operating units in the US, however, new plants likely to use new technologies.	**Medium** – no new nuclear plant has been built in the US for over 30 years.	**Low** – the industry has developed a very good record of safely operating nuclear plants	**Low** – fuel is abundantly available	**Medium** – while there are no air emissions, including CO_2, there is also no long term storage for spent nuclear fuel

Combustion Turbine

Capital Cost/kW: GE Frame 7FA: $600 – 650; GE LMS 100: $900 – 950

Fixed O&M Costs/ MWH: $8 - 10

Variable O&M Costs/ MWH: $5.0 - 7.0

Heat Rate:9,000 – 11,000 BTU/kWh – depending on technology

Availability: 90 - 95%

Description: Combustion turbines (CTs) burn natural gas and/or light distillate oil fuels and use the hot exhaust gases to power a turbine/generator. The technology is based on that used by aircraft jet engines. These plants do not require cooling water facilities.

Electric utilities and other power generating entities have thousands of hours of experience in building and operating CTs, so the operating risk associated with this technology is minimal.

Capital costs for CT construction is low, but operating costs (variable O&M) are very high due to the dominance of fuel in the variable pricing. CTs are designed and built to start on short notice and to synchronize with the grid quickly. Thus these plants operate during high demand, peak periods. These units typically set the PJM system LMP when they operate.

The major issues facing CTs are the high cost of natural gas and distillate oil. Many demand side programs are designed to "clip" the system peak during hot summer afternoons, so the need for new CTs is dependent on the expected efficacy of energy efficiency and, particularly, demand response programs. Operating capacity factors or utilization factors for this type of generation is in the 0%-3% range

Site Specific Characteristics

Existing fuel/transmission Infrastructure: CTs need access to gas transmission lines and electric transmission substations.

Brownfield suitability: CTs are generally suitable for brownfield sites.

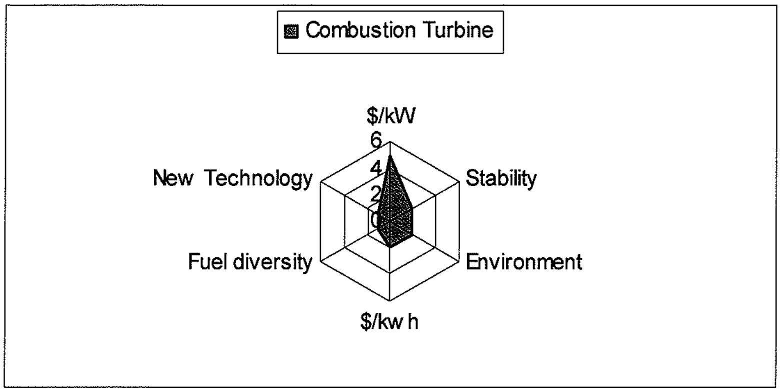
Support or Improve Reliability: CTs are very reliable for the brief periods during which they operate and thus new plants would increase system reliability.

DE IRP Opportunity

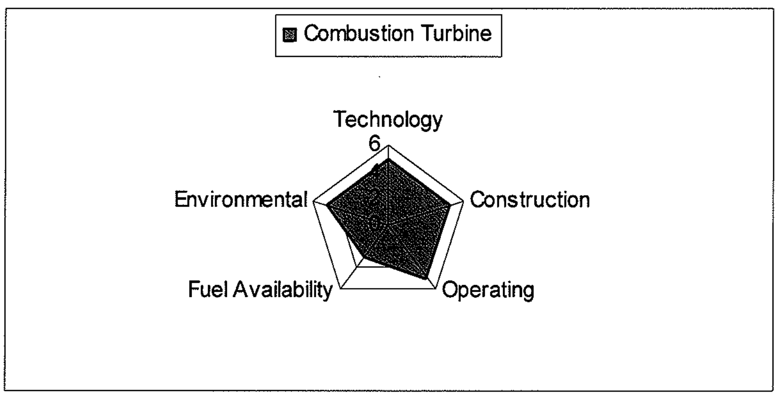
CTs can increase system reliability, especially during peak periods. Should a Delaware plant be required for reliability purposes and given the low capital costs, a Combustion Turbine is an appropriate technology.

Economic and Environmental Values

These units are generally low emitters of SO2, NOx, CO2 and particulates. They emit no mercury. One key contributor to their low total emissions is the low capacity factor. There is no waste created through the operation of CTs.



Risk Levels



Resource Type	Technology	Construction	Operating	Fuel Availability	Environmental
Combustion Turbine	**Low** – a common, proven technology	**Low** – a number of these plants have been built in recent years	**Low** – millions of hours of operating experience	**Medium** – natural gas availability is uncertain in the medium to long term.	**Low** – NOX and CO2 emissions are low

Solar - PhotoVoltaic

Capital Cost/kW: $3,500 – 4,500

Fixed O&M Costs/ MWH: $.05 - .10

Variable O&M Costs/ MWH: $.01 - .03

Availability: Intermittent, but coincident with peak

Description: Solar PhotoVoltaic (PV) technology converts direct sunlight into electrical (DC) energy. There is considerable interest in this technology around the world – as a result, research and production facilities are growing rapidly. These factors, together with state and federal policies specifically encouraging greater use of Solar PV, have led to rapid growth in solar PV's installed base.

Solar PV can be designed and installed for residential and small commercial applications, making it a common form of "distributed" renewable energy.

A growing number of utilities are sponsoring Solar PV programs, often through programs which subsidize loans (some of which take interest payment in the form of solar RECs).

There is also a growing number of qualified installers/maintenance firms who can assure that solar PV panels will be available for a number of years.

Site Specific Characteristics

Existing fuel/transmission Infrastructure: Solar PV relies on the existing distribution network

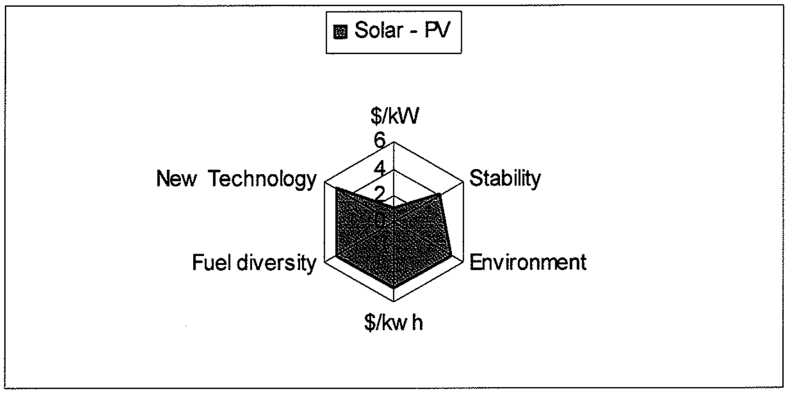
Brownfield suitability: Solar PV is often installed on customer premises. However, brownfield sites could be used for small scale "central" solar PV installations. However, more study is needed on the economic viability of solar PV stations in the mid-Atlantic region.

Support or Improve Reliability: Solar PV capacity is entirely dependent on season and cloud cover. However, the potential for peak Solar PV capacity tends to be coincident with peak demand.

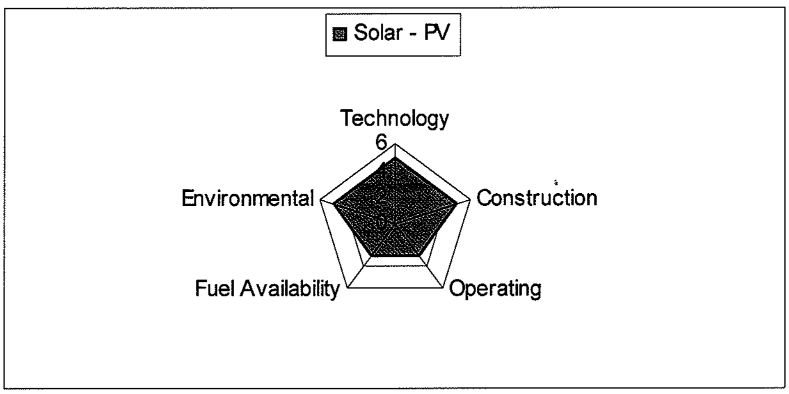
DE IRP Opportunity

The installed Solar PV base in the mid-Atlantic region is increasing. Through its Blueprint filing Delmarva has suggested a Solar PV program for Delaware.

Economic and Environmental Values



Risk Levels



Resource Type	Technology	Construction	Operating	Fuel Availability	Environmental
Solar – Photo-voltaic	**Low** – proven technologies available with considerable R&D efforts advancing technology choices.	**Low** – many commercial (avg. 10 kW) and residential installations (avg. 2kW) and installers in the US. Major "risk" factors are availability and consistency of state and federal tax incentives and rebates	**Medium** – most installations too recent to have history of long term operating issues.	**Medium** – while sunlight is intermittent and seasonal (in the NE US), maximum sunlight potential occurs during high demand periods	**Low** – no emissions nor local siting issues

Land-Based Wind

Capital Cost/kW: $2,000 – 2,700

Fixed O&M Costs/ kw year: $10 – 15

Variable O&M Costs/ MWH: $4.5 – 7.5

Heat Rate: NA

Availability: Intermittent and often non-coincident with peak. Within PJM, wind assets are allowed capacity equal to 20% of nameplate.

Description: Land-based wind is the fastest growing resource type in the country. However, much of that growth is in the Great Plains – from Texas north through the Dakotas. Topography, vegetation and existing land use restricts the potential sites for on-shore wind in the mid-Atlantic region. Nonetheless, state RPS requirements (such state requirements generally do not restrict the resource to an individual state) are increasing the number of land-based wind projects – especially in the Appalachian regions of Maryland, Pennsylvania and West Virginia and in the prairie regions of Illinois and Indiana. The economics of wind projects is highly dependent on the availability of the Production Tax Credit.

Site Specific Characteristics

Existing fuel/transmission Infrastructure: Most land-based wind sites need transmission additions to interconnect to the bulk power system.

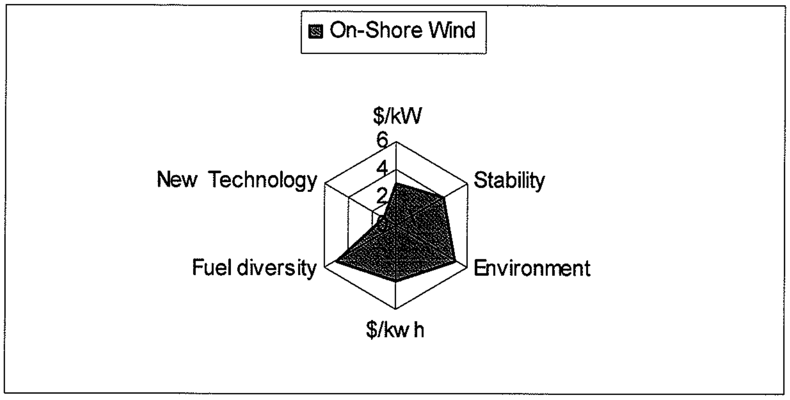
Brownfield suitability: In the mid-Atlantic region, land-based wind generally requires sites at higher elevations. There are few brownfield sites available for on-shore wind development.

Support or Improve Reliability: Due to wind intermittency, land-based wind resources generally do not support or improve reliability.

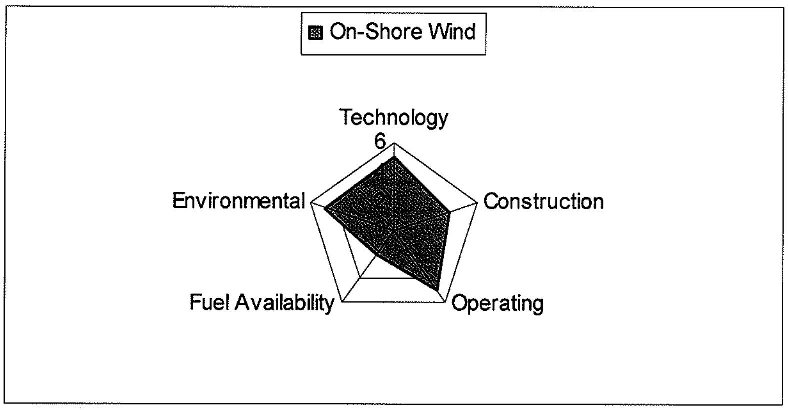
DE IRP Opportunity

The installed land-based capacity in the mid-Atlantic region is increasing. Through its "Green" RFP, Delmarva is seeking to procure land-based wind resources for Delaware. Initial estimates show that it is lower cost than off-shore wind.

Economic and Environmental Values



Risk Levels



Resource Type	Technology	Construction	Operating	Fuel Availability	Environmental
On-shore wind	**Low** – a growing number of operating sites	**Low** – a number of these plants have been built in recent years	**Low** – millions of hours of operating experience	**High** – periods of available wind are often not correlated with periods of high demand	**Low** – no emissions, only environmental issues are local siting concerns

Off-Shore Wind

Capital Cost /kW: $3,400 – 5,000

Fixed O&M Costs/ kw year: $15 - 20

Variable O&M Costs/ MWH: $15 - 25

Heat Rate: NA

Availability: Intermittent and often non-coincident with peak

Description: Delaware is familiar with off-shore wind due to the Blue Water Wind proposal. Off-shore wind facilities have significant construction costs, with little domestic US experience in designing and managing such projects.

Site Specific Characteristics

Existing fuel/transmission Infrastructure: Transmission must be built from the off-shore site to a land=based connection.

Brownfield suitability: N/A

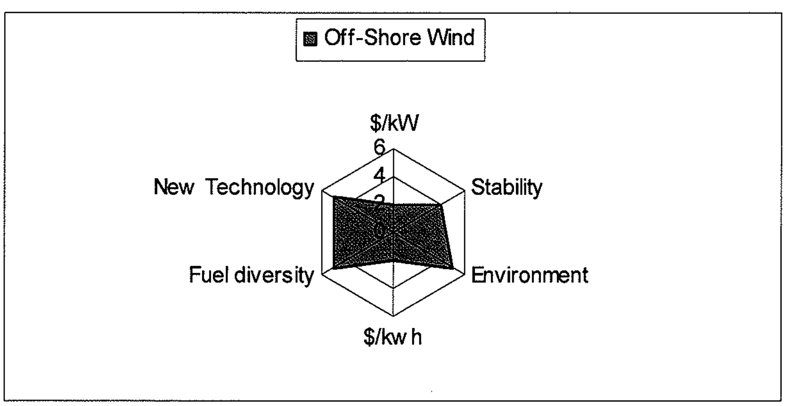
Support or Improve Reliability: Due to wind intermittency, off-shore wind resources generally do not support or improve reliability as well as non-intermittent generating resources.

.

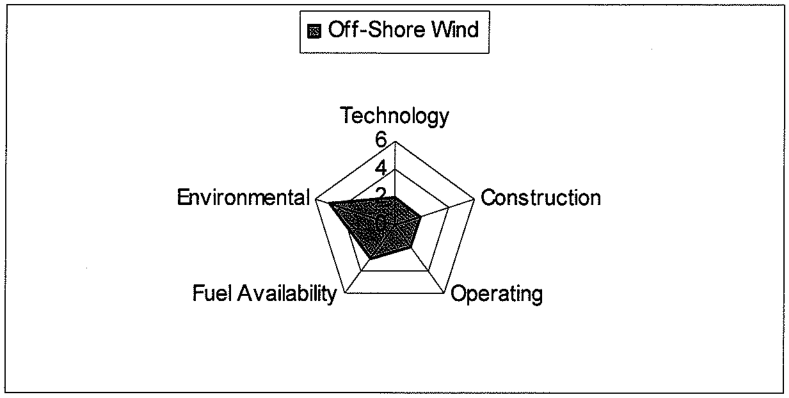
DE IRP Opportunity

Delmarva believes that off-shore wind is not a suitable IRP opportunity for its DE SOS customers when lower cost land-based wind resources are available.

Economic and Environmental Values



Risk Levels



Transmission

Capital Cost/kW: N/A

Fixed O&M Costs/ MWH: N/A

Variable O&M Costs/ MWH: N/A

Heat Rate: NA

Availability: 100%

Description: While transmission is not usually characterized as a "supply" resource, the addition of transmission can greatly increase Delaware's access to a wider and more diverse set of generation resources. By increasing the potential generation mix to which Delaware would have access, transmission has the potential to provide lower prices and greater reliability to Delaware electric customers

Site Specific Characteristics

Existing fuel/transmission Infrastructure: N/A

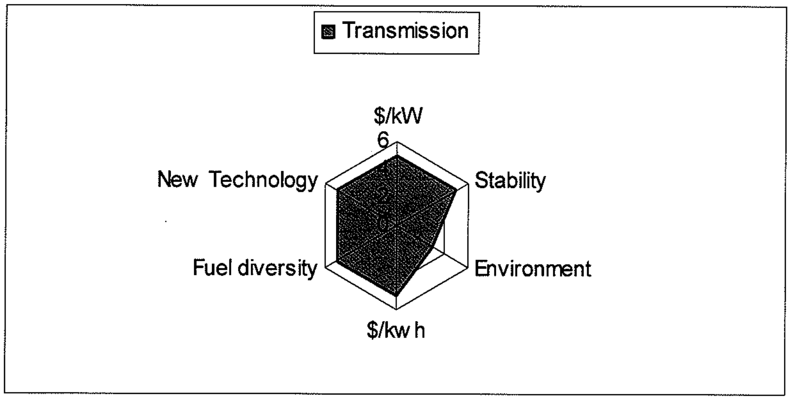
Brownfield suitability: To the extent possible, new transmission lines use existing right-of-way corridors.

Support or Improve Reliability: Additional transmission will have a larger impact on system reliability than any other resource.

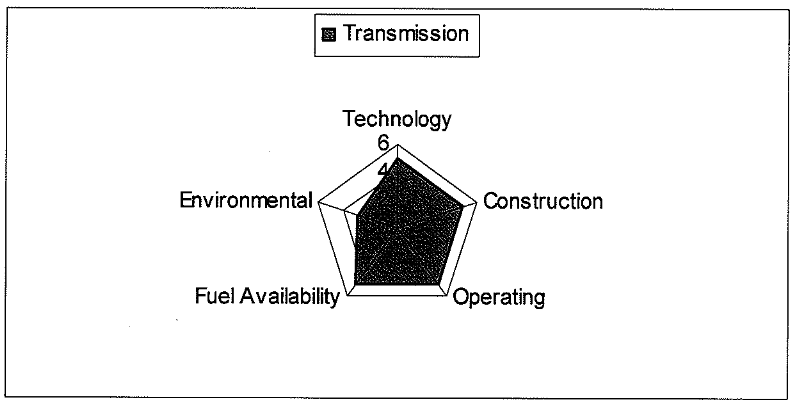
DE IRP Opportunity

New transmission service to Delaware is one of the priority recommendations of the IRP.

Economic and Environmental Values



Risk Levels



Demand Side Management (DSM)

Capital Cost/kW: Variable – see Appendix A.3 to Delmarva's January 2007 IRP Supplemental Data submittal.

Fixed O&M Costs/ MWH: N/A

Variable O&M Costs/ MWH: N/A

Heat Rate: NA

Availability: 100%

Description: Demand Side Management resources are many and varied. Most DSM programs are characterized as "energy efficiency" programs – i.e. they lower the overall demand for electricity. A smaller number of DSM programs are characterized as "demand response" programs – i.e. they lower demand during periods of high (or peak) use.

Site Specific Characteristics

Existing fuel/transmission Infrastructure: N/A

Brownfield suitability: N/A

Support or Improve Reliability: DSM programs, especially Demand Response programs, could have a significant impact on reliability by lowering peak demand.

DE IRP Opportunity

Demand Side Management is one of the priority recommendations of the IRP and Delmarva's Blueprint for the Future.

VIII. RELIABILITY BENEFITS AND COST OF REGULATED GENERATION IN COMPARISON TO THE HYBRID APPROACH

One of the important aspects of electric system reliability is system voltage support. Voltage support can be supplied in a number of ways:

- Generators provide dynamic reactive power when they are running.
- Generators that have been appropriately equipped can also act as synchronous condensers. The generators will produce reactive support to the system even when they are not producing real power (MW).
- Static Var Compensators (SVC) are devices that, although static in nature because they are composed of capacitors and reactors, mimic the system response of dynamic devices.

- Capacitors which are static devices can be added to the system and can be under the control of the system operator who will turn them on when they are required for system voltage support.
- Transmission lines and the addition of transmission lines decrease the amount of losses in the system by adding additional paths for power to reach load centers. The lines also can help move dynamic reactive power around local systems.

It is important to have all of the above sources available to help support system voltages. Over the past 10 years all of the above have been added to the Delmarva Power system. Over 1,000 MW of new generation has been added some of which have synchronous condenser capability. Two SVCs have been added as have numerous new transmission lines included a major new 230 kV north to south path. Delmarva notes that as part of the normal Regional Transmission Expansion Planning (RTEP) process, PJM examines the capability of the system to supply the needed reactive power support to maintain acceptable transmission voltages. If PJM finds that there is a deficiency they will recommend a solution. These solutions can be either SVCs, Capacitors or new transmission lines. Generators which enter the market and locate in a specific area can apply at the FERC to be paid for the dynamic reactive capability of their generator through the PJM Tariff.

In theory, from a reliability perspective, there is really no difference between the reliability benefits of new generation whether it is secured through a PPA or as a regulated asset provided that the generation resource is physically the same and constructed at the same location.

In the March 5, 2008 IRP Update filing, Delmarva presented a reliability plan for the Company including the detail of the specific transmission enhancements planned to maintain electric system reliability in Delaware.[19] The reliability plan concluded that strategic investments in transmission infrastructure were the most appropriate way to maintain reliability for the Delmarva service territory. In addition, Delmarva independently conducted and presented preliminary scenario analyses for the potential risk to system reliability of the retirement of various generating units located on the Delmarva Peninsula. Delmarva also analyzed the risk to system reliability of potential delay in the construction of the Chesapeake Bay crossing portion of the MAPP transmission line. The evaluation of these scenarios indicated that each of the reliability risks posed by the various scenarios would be best addressed with additional transmission investments over the base plan. This scenario "stress testing" analysis did not change the fundamental result that the most appropriate course of action is to invest in additional transmission system enhancements as identified in the reliability plan.

However, Delmarva also noted in the March 5, 2008 IRP filing that new generation located in Delaware could provide additional reliability benefits. Delmarva also noted it would be willing to own and operate generation assets for purposes of maintaining system reliability under a traditional regulated environment (or its functional equivalent) if it was directed to do so by the Commission. Further, Delmarva suggested that if the Commission were interested in pursuing the regulated generation option, that it 1) direct the Collaborative Working Group to more fully investigate this issue and 2) authorize the Company to perform a regulated generation feasibility study. This feasibility study would examine potential sites, generation unit sizes and infrastructure requirements.

The hybrid approach as proposed by Staff consists of two separate projects; 1) a 450 Mw off shore wind farm owned by Blue Water Wind from which Delmarva would be required to take up to 300 Mw of energy in any one hour, and 2) a back-up generation facility designed to "firm"

[19] Update pp 117 - 124

the wind power. Two bids were received for the back-up portion of the hybrid proposal. The IC report of Oct 29, 2007 indicated that the more cost-effective of the two bids for the back-up portion was the Conectiv Energy (CE) bid. Consequently, for purposes of comparison of the hybrid approach to regulated generation contained in this filing, Delmarva will use the CE bid combined with the proposed BWW project as a basis of comparison to a regulated generation asset.

A. **Cost of Regulated Generation and the Back-up portion of the Hybrid**

Cost differences can arise between a PPA and a regulated asset for a number of reasons. The first is that the cost of the PPA to consumers depends on the term of the contract whereas the cost of a regulated asset depends on the life of the asset. A second way costs can vary between a regulated asset and a PPA is that a PPA usually fixes the terms and conditions of the power sale at the time of contract execution whereas the cost of a utility asset to consumers is regulated by Commission Directive over the life of the asset. Additionally, PPAs can often have must-take minimum purchase requirements whereas a utility asset would not.

The Conectiv Energy proposal included a twenty five year term contract for two GE LMS-100 machines. One of the machines is to be constructed with a synchronous condenser to provide additional voltage support. The LMS machines are more expensive to build than traditional combustion turbines but they are more efficient and have better emission control. They can also ramp up to full capacity in a very short time period which is a desirable attribute if the purpose of the unit is to back up a volatile intermittent wind resource. The total unforced capacity (UCAP) from the two GE LMS-100 machines is 195 Mw. When matched with the 105Mw of UCAP proposed by the BWW facility, this yields the 300 Mw of capacity required by the hybrid approach. The Conectiv energy proposal also contains a minimum must take of 1 million MWh per year[20].

Under the Conectiv bid, a fixed capacity charge of $10.65 KW Month applies over the 25 years of the PPA. In addition a $.60 KW Month charge is added for project interconnection costs on Delmarva's side of the transformer for a total fixed capacity charge of $11.25 KW month. The total capacity cost over the life of the contract in nominal dollars would be about $658 Million.

Delmarva would not propose building a regulated asset specifically to back up a wind resource of a given capacity. If the Commission found that a regulated generation asset was in the public interest for the purposes of supporting reliability, Delmarva would propose building one combustion turbine of 100 MW. If authorized by the Commission, Delmarva could investigate potential generation sites that are capable of supporting additional generation as well.

A recent report from PJM[21] indicates that the capital cost of a 100 Mw turbine to be $900 KW, or for Delmarva's purposes $90 million for a 100 Mw machine. Using a fixed operations and maintenance cost estimate of $1.7 million a year and other assumptions relevant for a regulated asset, the cumulative present worth of the incremental revenue requirements (CPWIRR) for the 100 MW combustion turbine described above would be $141.7 million and the levelized annual CPWIRR would be $11.6 million.[22]

While not an "apples to apples" comparison, the Table below provides comparative information of the estimated cost to customers of the combustion turbines bid by Conectiv as

---

[20] The must take portion of the contract is not necessarily generated by the planned facility.
[21] See 2008 Update of Cost of New Entry Combustion Turbine Power Plant Revenue Requirements for PJM Interconection LLC, Pasteris Energy Inc, January 7,2008.
[22] The expected costs of a regulated asset are highest in the first full year of the asset's life and decline thereafter over the life of the asset. The levelized annual amount shown is for comparative purposes.

part of the hybrid proposal and the regulated generating assets Delmarva would propose to construct if authorized by the Commission:

All costs expressed in Revenue Requirements to be recovered through retail electric rates from DPL Delaware customers	**Regulated Generation Asset One Unit Combustion Turbine 100 Mw**	**Conectiv Energy Bid Purchase Power Agreement Two Unit CT Total 195 MW**
Total Nominal Costs	$409 million (30 years)	$658 Million (25 Years)
Present Worth	$142 million (CPWIRR)	$302 million PV
Levelized Annual Cost	$11.6 Million (Levelized CWPIRR)	$26.3 Million (Fixed Capacity Charge)
Levelized Cost $/MW year	$116,000/MW year	$135,000/MW year

B. <u>Cost and Reliability benefits of the wind portion of the hybrid proposal</u>

The cost of the BWW portion of the hybrid proposal has been reviewed in great detail as part of the RFP process and will not be repeated here. The discussion below refers to the reliability benefits of the wind resource.

The Table below shows the dates of the Delmarva system peak for the last seven years.

Year	Day and hour of Delmarva System Peak
2001	3 PM, August 9
2002	4 PM, July 29
2003	5 PM, August 22
2004	4 PM, August 20
2005	5 PM, July 27
2006	5 PM, August 3
2007	5 PM August 8

The time of the system peak is usually a time when the electric system is stressed in terms of having generation resources available to meet customer loads. As total customer demand begins to approach system resources, electric prices rapidly increase.

Because the Delmarva system peak is most likely to occur in July or August between 2 and 5 PM, it is important from a reliability perspective to estimate what the BWW facility would produce in those hours. The wind speed on any hour in a given day can be much different from the hourly wind speed on the "average monthly" day. This means that the Mwh output of a wind facility could be different at an exact hour on a given day than the average date. Using publicly available hourly wind speed data collected from an off-shore NOAA weather station located in the Delaware Bay, Delmarva prepared a rough simulation of what the BWW facility would have generated during the actual hours between 2 and 6 PM for the months of July and August of 2006 and 2007. The results of this analysis are shown in the output frequency table provided below.

Estimated Frequency of BWW Output MW 2 PM-6 PM
July and August 2006 and 2007

Est MW Output	# of Hours	% 0f hours
0 MW	161	25.97%
1-30	65	10.48%
31-60	65	10.48%
61 -90 MW	70	11.29%
91- 120 MW	53	13.06%
120-150 MW	48	8.55%
151-200 MW	81	7.74%
201 – 300 MW	77	12.42%
Total	620	100%

Based on the simulated output data, this frequency table shows that during the hot summer months of July and August 2006 and 2007 when the wind does not blow as much as other periods, the estimated BWW output would have been zero Mw for about 25% of the hours during the period 2PM- 6PM. As future system peaks are expected to occur in these months during these hours, then from a perspective of assuring resources at the time of the system peak, these are critical and non-trivial percentages. While the data above is simulated based on available information, it does not provide much comfort from an electric system planning perspective that the resource may be counted upon at the time of a given system peak.

IX. EVALUATION OF DEMAND RESPONSE PROGRAMS

Delmarva Power selected demand side management programs in its initial December 2006 IRP based upon a comprehensive evaluation of available energy efficiency, conservation, and demand response measures (collectively "demand side management programs"). (See Delmarva Power & Light Company Integrated Resource Plan 2007 to 2016 Supporting Documentation, pp. 19 – 42, filed on January 8, 2007.)

The following 28 residential and 28 non-residential demand side management programs were considered. Of these programs, SmartStats and Water Heater Load Control were the only two residential "demand response" programs; SmartStats was the only non-residential "demand response" programs. All of the remaining programs can be characterized as "energy efficiency" or "conservation". All programs provide both energy savings and peak demand savings of varying amounts and therefore were considered collectively.

Residential DSM Measures Considered

1. Central AC Quality Installation	15. ENERGY STAR Dishwasher
2. Central AC Tune-Up	16. ENERGY STAR Groundsource Heatpump
3. Central Heatpump Quality Installation	17. ENERGY STAR Home
4. Central Heatpump Tune-Up	18. ENERGY STAR Refrigerator
5. Duct Sealing	19. ENERGY STAR Window AC
6. Efficient Basement Insulation	20. High-Efficiency Pool Pump and Timer
7. Efficient Ceiling Insulation	21. High-Efficiency Portable Electric Spas
8. Efficient Domestic Hot Water Heater	22. Home Performance with ENERGY STAR
9. Efficient Wall Insulation	23. Programmable Thermostat
10. Efficient Windows	24. SmartStats
11. ENERGY STAR Central AC	25. Updated Energy Code
12. ENERGY STAR Central Heatpump	26. Water Heater Load Control
13. ENERGY STAR CFL	27. Weatherization Assistance
14. ENERGY STAR Clotheswasher	28. ENERGY STAR Dishwasher

Non-Residential DSM Measures Considered

1. Building Commissioning	15. High-Efficiency Vending
2. Central Chiller Quality Installation	16. LED Exit Sign (4 W)
3. Compact Fluorescent Poultry Lighting	17. Linear Fluorescent (2L4' F28T8/SS) Lighting
4. Copier Power Management Enabling	18. Network PC Monitor Power Management Enabling
5. Efficient Windows	19. Occupancy Sensors (Lighting)
6. Energy Management System	20. Operator Training and Maintenance Program
7. Heatpump Quality Installation	21. Package AC Quality Installation
8. High Bay T5 (4L4' F28T5/HO) Lighting	22. PC Power Management Enabling
9. High-Efficiency Central Chiller	23. Perimeter Daylighting Controls
10. High-Efficiency Heatpump	24. Printer Power Management Enabling
11. High-Efficiency Motor	25. Screw-In Compact Fluorescent Lighting
12. High-Efficiency Package AC	26. SmartStats
13. High-Efficiency Packaged Terminal AC	27. Split AC Quality Installation
14. High-Efficiency Split AC	28. Updated Energy Code

The screening of DSM measures included the following steps:

(1) an initial identification of commercially available technologies applicable to the Delaware electricity market;

(2) an examination of existing Delaware electricity market characteristics;

(3) development of Delaware specific energy and demand measure impacts;

(4) estimation of measure costs;

(5) cost-effectiveness screening using the Total Resource Cost ("TRC") Test.

Of the original 28 residential and 28 non-residential programs, the following 18 residential and 12 non-residential programs passed the TRC test. The three demand response programs were all selected based on the TRC:

DSM Demand Savings by Program, Sorted by TRC & Sector (MW)

Program	Sector	TRC	Levelized Cost per kWh	Levelized Cost per kW	Cumulative - Expirations (MW) 2007	2009	2010	2015	2020	2025	2031
Residential Efficient Windows	Residential	7.9	$0.01	$34	0.0	0.1	0.2	0.7	1.6	2.7	4
Programmable Thermostat	Residential	7.3	$0.01	$735	0.0	0.0	0.0	0.1	0.2	0.3	0
High Efficiency Room AC Rebate	Residential	4.9	$0.01	$11	0.2	0.7	1.1	4.0	8.8	13.6	18
Weatherization	Residential	4.0	$0.02	$919	0.0	0.2	0.3	1.1	2.3	3.4	4
Hot Water Efficiency	Residential	3.8	$0.04	$87	0.0	0.1	0.1	0.5	1.1	1.7	2
Residential CFLs	Residential	3.8	$0.01	$72	0.3	1.3	1.9	7.0	12.3	16.1	19
Residential SmartStats	Residential	2.9	$0.12	$55	2.6	11.5	18.5	39.0	65.9	84.0	95
Home Insulation	Residential	2.6	$0.03	$2,665	0.0	0.0	0.0	0.1	0.3	0.5	1
High Efficiency Heatpump Rebate	Residential	2.6	$0.02	$42	0.2	0.7	1.0	3.9	8.4	13.1	17
Home Performance with ENERGY STAR	Residential	2.0	$0.06	$126	1.2	4.6	7.0	26.8	58.5	96.2	134
Heatpump Quality Install	Residential	1.7	$0.04	$82	0.2	0.8	1.1	4.4	8.5	11.6	14
Groundsource Heatpumps	Residential	1.5	$0.05	$126	0.4	1.4	2.1	8.0	17.4	26.9	35
ENERGY STAR Homes	Residential	1.5	$0.11	$310	0.2	0.8	1.2	4.8	10.4	17.2	24
Residential Pools and Spas	Residential	1.5	$0.04	$142	0.1	0.4	0.7	2.5	4.8	6.6	8
Central AC Quality Install	Residential	1.4	$0.09	$75	0.3	1.2	1.9	7.2	15.7	25.8	36
High Efficiency AC Rebate	Residential	1.3	$0.10	$61	0.2	0.7	1.1	4.1	8.9	14.7	20
Duct Improvement Program	Residential	1.1	$0.16	$145	0.4	1.7	2.6	10.0	19.1	26.2	32
Water Heater Load Control	Residential	0.6	$5.53	$136	0.3	1.1	1.8	3.4	4.0	4.5	5
Commercial SmartStats	Non-Res	12.0	$0.26	$7	5.7	24.2	38.6	73.3	86.7	96.2	108
Non-Residential Motors	Non-Res	8.5	$0.00	$14	0.0	0.0	0.1	0.2	0.5	0.8	1
Agricultural Poultry CFLs	Non-Res	6.9	$0.00	$20	0.0	0.2	0.2	0.5	0.7	0.8	1
Energy Management Systems	Non-Res	6.8	$0.01	$66	0.2	0.7	1.0	3.9	7.6	10.4	13
Non-Residential Lighting	Non-Res	5.6	$0.01	$33	0.8	3.1	4.7	18.0	39.2	58.8	76
Vending Machines	Non-Res	5.5	$0.00	$62	0.0	0.0	0.0	0.2	0.4	0.5	1
Non-Residential Office Equipment	Non-Res	4.4	$0.01	$35	0.0	0.0	0.0	0.0	0.0	0.0	0
Building Commissioning	Non-Res	3.6	$0.01	$58	0.9	3.4	4.3	10.1	15.0	18.0	21
Non-Residential High-Efficiency HP & AC	Non-Res	2.3	$0.03	$47	1.5	5.8	8.8	33.9	73.8	114.1	150
Non-Residential Windows	Non-Res	2.1	$0.02	$111	0.0	0.1	0.1	0.5	1.0	1.7	2
Operator Training and Maintenance	Non-Res	1.5	$0.03	$343	0.5	0.7	0.9	2.0	2.8	3.2	4
Non-Residential HP & AC Quality Install	Non-Res	1.1	$0.08	$133	0.3	1.3	1.9	7.3	16.0	24.7	32
Total					17	67	103	278	492	694	876

ICF's IPM® Model was relied upon to select the least cost mix of DSM measures for potential future utility implementation. Model results were used as a guide for DSM program selection.

Of the 18 residential and 12 non-residential programs that passed the TRC screening, the following 14 residential and 11 non-residential programs, including the three demand response programs, were selected by IPM®:

Summary of Demand & Generation Savings Potential
Selected by IPM®, by Program

					Demand (MW) Cumulative Install. - Expirations				Generation (GWh) Cumulative Install. - Expirations			
Program	Sector	TRC	Levelized Cost per kWh	Levelized Cost per kW	2007	2010	2013	2016	2007	2010	2013	2016
Residential Efficient Windows	Residential	7.9	$0.01	$34	0.0	0.2	0.4	0.7	0.0	0.4	0.8	1.5
High Efficiency Room AC Rebate	Residential	4.9	$0.01	$11	0.2	1.1	2.2	4.0	0.3	1.8	3.8	7.1
Hot Water Efficiency	Residential	3.8	$0.04	$87	0.0	0.1	0.3	0.5	0.0	1.2	2.5	4.7
Residential CFLs	Residential	3.8	$0.01	$72	0.3	1.9	3.9	7.0	6.0	35.4	73.4	130.5
Residential SmartStats	Residential	2.9	$0.12	$55	0.0	8.9	18.4	8.9	0.0	0.2	0.4	0.2
High Efficiency Heatpump Rebate	Residential	2.6	$0.02	$42	0.2	1.0	2.1	3.9	1.1	6.2	12.9	24.1
Home Performance with ENERGY STAR	Residential	2.0	$0.06	$126	1.2	7.0	14.4	7.0	2.4	14.4	29.9	14.4
Heatpump Quality Install	Residential	1.7	$0.04	$82	0.2	1.1	2.4	4.4	1.2	7.1	14.8	27.4
Groundsource Heatpumps	Residential	1.5	$0.05	$126	0.4	2.1	4.3	8.0	2.2	12.9	26.7	49.6
Residential Pools and Spas	Residential	1.5	$0.04	$142	0.1	0.7	1.4	2.5	1.0	5.8	12.0	22.2
Central AC Quality Install	Residential	1.4	$0.09	$75	0.3	1.9	3.9	1.9	0.5	2.9	6.0	2.9
High Efficiency AC Rebate	Residential	1.3	$0.10	$61	0.2	1.1	2.2	1.1	0.3	1.7	3.4	1.7
Duct Improvement Program	Residential	1.1	$0.16	$145	0.4	0.4	0.9	0.4	0.9	0.9	1.9	0.9
Water Heater Load Control	Residential	0.6	$5.53	$136	0.3	1.8	3.6	3.4	0.0	0.2	0.3	0.3
Commercial SmartStats	Non-Res	12.0	$0.26	$7	5.7	38.6	80.0	73.3	0.1	0.9	1.9	1.8
Non-Residential Motors	Non-Res	8.5	$0.00	$14	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.5
Agricultural Poultry CFLs	Non-Res	6.9	$0.00	$20	0.0	0.2	0.4	0.7	0.0	1.2	2.5	4.1
Energy Management Systems	Non-Res	6.8	$0.01	$66	0.2	1.0	2.1	1.0	0.4	2.1	4.4	2.1
Non-Residential Lighting	Non-Res	5.6	$0.01	$33	0.8	4.7	9.7	18.0	4.7	28.2	58.3	108.4
Vending Machines	Non-Res	5.5	$0.00	$62	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.5
Building Commissioning	Non-Res	3.6	$0.01	$58	0.9	4.3	9.0	14.8	1.8	9.0	18.6	30.8
Non-Residential High-Efficiency HP & AC	Non-Res	2.3	$0.03	$47	1.5	8.8	18.2	33.9	3.1	18.3	37.9	70.5
Non-Residential Windows	Non-Res	2.1	$0.02	$111	0.0	0.1	0.2	0.1	0.0	0.2	0.5	0.2
Operator Training and Maintenance	Non-Res	1.5	$0.03	$343	0.0	0.9	1.9	0.0	0.0	2.0	4.2	0.0
Non-Residential HP & AC Quality Install	Non-Res	1.1	$0.08	$133	0.3	1.9	3.9	1.9	0.7	4.1	8.6	4.1
Total					13	90	186	198	27	157	326	513

On February 6, 2008 the Company filed its "Blueprint for the Future Application and Plan" containing recommended DSM programs and suggesting a DSM Collaborative to work with Delmarva Power to establish the final mix of DSM programs. Based upon the DSM measures selected through the IRP, Delmarva Power developed eleven recommended DSM programs that could be implemented by the Company beginning in 2007 for an initial three year period, subject to Commission approval. In developing its proposed programs, the Company considered the magnitude of achievable energy and demand reductions and sought to create electricity savings opportunities for all customer classes with a particular program emphasis for Delaware residential and small commercial customers.

Two recommended programs were not screened through the IRP process, the Energy Awareness Campaign, and the Non-Residential Internet Demand Response Platform. Typically, Energy Awareness Campaigns are not subject to traditional utility cost-effectiveness screening due to the difficulty of estimating resulting electric demand and energy reductions. The Demand Response Internet Platform was not screened through the IRP due to the difficulty of estimating peak electricity demand reductions for the program. However, Delmarva recommends implementing the Demand Response Internet Platform as a low-cost method of encouraging the participation of larger Delaware electricity customers in PJM demand response programs designed to encourage customers to reduce their electricity load during peak load periods.[23]

The Company announced its planned deployment of an Advanced Metering Infrastructure ("AMI") System in its Blueprint filing and described the demand response advantages related to AMI enabled dynamic pricing. (See Blueprint, pp.42 – 49.) On August 29, 2007, Delmarva Power filed its AMI business case. That filing was supported by an analysis of the impact of dynamic pricing on peak electricity demands and provided a detailed discussion of the value of those reductions. (See AMI Business Case, pp. 16 – 24 and the Brattle Group Report titled "Quantifying Customer Benefits from Reductions in Critical Peak Loads from PHI's Proposed Demand-Side Management Programs," pp. 33 – 35, filed on September 28, 2007.) This extensive analysis served as the basis for the Company's recommended dynamic pricing program contained in Delmarva Power's March 5, 2008 IRP filing.

The Company recommended the following utility provided demand response programs in its March 5, 2008 IRP update (Section VII, pp. 129 – 142):

- Residential Direct Air Conditioning Control
- Small Commercial Direct Air Conditioning Control
- Non-Residential Internet Platform for Load Curtailment
- AMI Enabled Dynamic Pricing for Non-Interval Customers

Future demand side management program peak demand reductions will be achieved through both conservation/energy efficiency programs and demand response programs. The

[23] Delmarva Power recently completed a cost-effectiveness analysis of an identical program in its Maryland service territory and concluded that the cost-effectiveness of the program (using conservative demand reduction estimates) under the Total Resource Cost Test exceeded 35 to 1 – overwhelmingly cost-effective.

Delaware Sustainable Energy Utility (SEU) is now responsible for the implementation of conservation/energy efficiency programs. The SEU provided DPL with projected peak demand and energy reductions for its planned programs for inclusion in the Company's Updated IRP (See pp. 129-131).

The Company looks forward to proceeding with consideration of this IRP in accordance with the procedural schedule set forth by Hearing Examiner Price in her letter dated March 11, 2008.

ASHBY & GEDDES
ATTORNEYS AND COUNSELLORS AT LAW
500 DELAWARE AVENUE
P. O. BOX 1150
WILMINGTON, DELAWARE 19899

TELEPHONE
302-654-1888

FACSIMILE
302-654-2067

24 March 2008

VIA E-MAIL & U.S. MAIL

Todd L. Goodman, Esq.
Associate General Counsel
Pepco Holdings, Inc.
800 King Street
P.O. Box 231
Wilmington, DE 19899

Re: *Delmarva Power & Light Company*
PSC Docket No. 07-20

Dear Todd:

Staff has received and reviewed the Company's amended IRP in connection with the captioned matter. Staff believes the amended IRP does not clearly identify certain issues surrounding the development of Delaware's energy supply portfolio for the ten-year planning period.

As you are aware, under the Delaware Electric Utility Retail Customer Supply Act of 2006 ("EURCSA"), the Company is required to "systematically evaluate all available supply options" during the ten-year planning period in order to require sufficient, efficient and reliable sources over time to meet its customers' needs at a minimal cost. This detailed investigation should include all reasonable short- and long-term procurement options, even if such options are not ultimately recommended by the Company. In this review, Delmarva may consider the economic and environmental value of:

(i) resources that utilize new or innovative baseload technologies (such as coal gasification;
(ii) resources that provide short- or long-term environmental benefits to the citizens of this State (such as renewable resources like wind and solar power);
(iii) facilities that utilize existing brownfield or industrial sites;
(iv) resources that promote fuel diversity;
(v) resources or facilities that support or improve reliability; or
(vi) resources that encourage price stability.

In order to assist the Staff's evaluation of the amended IRP, Staff requests that Delmarva either provide information or identify the relevant portions of the amended IRP regarding the following issues:

- Identification of the specific blend of resources the Company proposes to meet the projected SOS load. Staff requests that the Company itemize each resource and the amount (*i.e.* MW) of the corresponding load that will be satisfied in each year of the ten-year planning period with each resource option.
- A detailed risk and cost analysis of each resource option proposed on pages 58-64 of the amended IRP that considers the factors outlined in Section 1007(c)(1)b. of the EURCSA.
- Modeling of the implications of incorporating long-term resources into Delaware's energy supply portfolio. Modeling should include analysis of risk allocation between Delmarva and the SOS customers, intraday load shaping, load uncertainty, and the risk of customer migration. Staff recognizes that in the volatile and uncertain energy climate that exists, forecasts extending beyond a three year time horizon will lack some of the precision available in the near term.
- Simulation of Delaware's energy portfolio in the following three alternative long-term procurement scenarios:
  (1) Bluewater offshore wind PPA and a backup generation PPA;
  (2) PPA for the procurement of onshore wind power from a regional jurisdiction; and
  (3) No new generation assets with reliance on PJM's Mid-Atlantic Power Pathway project.
- The Company's position on the following key issues:
  (1) cost recovery;
  (2) implementation of a non-bypassable distribution charge;
  (3) possible restrictions of customer choice; and
  (4) operation of true-up mechanisms.
- Comparison of the cost versus reliability benefits of new utility-owned generation and a long-term power purchase agreement – *i.e.* comparison to the Bluewater and backup generation PPAs.
- Comprehensive presentation of all reasonably available demand response programs and identification of the Company's rationale for recommending or not recommending a particular program.

Staff would appreciate the Company supplying us with all responses to the above inquiries no later than May 15, 2008. We believe that such information will further assist Staff, and ultimately the Commission, in deciding whether the IRP meets the EURCSA's minimum statutory requirements and the rules promulgated in Regulation Docket No. 60.

If you any questions or concerns regarding the above, please don't hesitate to contact me.

Sincerely yours,

James McC. Geddes

JMcCG:jmg

cc: Gary Stockbridge (via e-mail)
William Moore (via e-mail)
Gary Cohen (via e-mail)
Jack Barrar (via-email)
Bruce H. Burcat (via e-mail)
Michael Sheehy (via e-mail)
Janis Dillard (via e-mail)
David Bloom (via e-mail)